EFFECT OF ORAL DEBRIEFING WITH SIMULATED CPR LEARNING ON KNOWLEDGE, SKILL AND SELF EFFICACY AMONG NURSING STUDENTS IN SELECTED COLLEGES.

Synopsis

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Degree of

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I **Mrs. Ezhilarasi R**, Part time External Scholar (UIN 1905002018) declare that the research work and the thesis on the title tittle **"EFFECT OF ORAL DEBRIEFING WITH SIMULATED CPR LEARNING ON KNOWLEDGE, SKILL, AND SELF-EFFICACY AMONG NURSING STUDENTS IN SELECTED COLLEGES"** is whole heartedly done by myself as a part of the work to be submitted to the **SBV University, Puducherry**, under the supervision of **Dr. Helen Shaji J.C, Former Principal**, Shri Sathya Sai College of Nursing, Sri Balaji Vidyapeeth University (DU), Chennai Campus.

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ABSTRACT

Introduction: Low survival rates from cardiac arrest, a leading global cause of death, are primarily due to inadequate knowledge and training in cardiopulmonary resuscitation (CPR). In India[1], CPR awareness is less than 2%, and out-of-hospital cardiac arrest (OHCA) survival rates remain critically low at 2-3%, highlighting significant training deficiencies**.** This study evaluates the effect of oral debriefing during simulated CPR instruction for nursing students, aiming to enhance their knowledge, skill and self-efficacy in emergency care. It assesses the effectiveness of oral debriefing, explores relationships among variables, and measures baseline knowledge, skill and self-efficacy in control and experimental groups. Additionally, it examines the relationship between post-test efficacy and demographic factors in the experimental group.

Methods: This quantitative true experimental study examined the effects of oral debriefing with CPR simulated learning on knowledge, skill and self-efficacy in 240 second year B.Sc. Nursing students. A pretest-posttest control group design was used, involving students from six nursing colleges in Bangalore (120 Experimental and 120 control group). Multistage cluster sampling with lottery and block randomization was applied for participant allocation. Eligible criteria included students studying Bangalore, willing to participate, and attend colleges .Exclusion criteria included students certified in CPR, with significant medical conditions, and mental health disorders.

Results: The experimental group showed a 41.65% skill gain (95% CI: 39.21–44.09) versus 1.47% (95% CI: 0.85–2.09) in the control group ($p < 0.001$). Self-efficacy improved significantly from 23.74 (pretest) to 32.67 (posttest-I) to 49.15 (posttest-II), with mean differences of 8.93 and 16.78 ($p < 0.001$). Bonferroni postdoc analysis confirmed the intervention's effectiveness. Age ($\chi^2 = 9.67$, $p = 0.05$) and sex ($\chi^2 = 5.65$, $p = 0.05$) showed significant associations with post-test knowledge. Demographic factors, including family type, residential region, and prior CPR knowledge, influenced post-test gains.

Conclusion: The findings highlight the effectiveness of oral debriefing in nursing education, demonstrating its role in strengthening knowledge, skill development, and confidence in practical application. Integrating oral debriefing into nursing curriculum can enhance training outcomes and improve emergency response capabilities.

Keywords: Cardiopulmonary resuscitation, Oral debriefing, Knowledge, Skill, Self-efficacy. simulated learning. Nursing students.

INDEXING

CHAPTER	HEADING	PAGE No.
I	INTRODUCTION	5
II	REVIEW OF LITERATURE	8
III	RESEARCH METHODOLOGY	10
IV	DATA ANALYSIS & INTERPRETATION	18
V	DISCUSSION	32
VI	SUMMARY, CONCLUSION, RECOMMENDATIONS & LIMITATIONS	34
	REFERENCES	37
	ANNEXURE	38

LIST OF TABLES

TABLE NO	LIST OF TABLES	PAGE NO
3.1	Sampling technique employed in the study	11
4.1	Description of the demographic variables of the participants in the Experimental and control group	18-19
4.2	Distribution of pretest Level of knowledge score among Experimental and Control group of Nursing Students	20
4.3	Distribution of Pretest Level of skill score among Experimental and Control group of Nursing students	20
4.4	Distribution of pretest Level of Self-efficacy score among Experiment and Control group of Nursing students	21
4.5	Distribution of Pretest, Posttest-I and Posttest-II Level of knowledge score among Experiment and Control group of students	22
4.6	Mean and Standard deviation of the level of knowledge score during Pretest Posttest-I and Posttest- II between group wise	23
4.7	Effectiveness of Oral debriefing with simulated CPR learning and generalization of knowledge gain score	24
4.8	Comparison of Mean skill gain score during Pretest, Posttest-I and Posttest-II among experimental and control group	24
4.9	Effectiveness of Oral debriefing with simulated CPR learning and generalization of Skill gain score	25
4.10	Multiple comparison of self-efficacy gain score between Pretest, Posttest-I, and Posttest-II using Bonferroni t-test	26
4.11	Effectiveness of Oral debriefing with simulated CPR learning and generalization of self-efficacy gain score	27
4.12	Co-relation between knowledge gain score, skill gain score and self-efficacy gain score on Oral debriefing with simulated CPR learning among experimental group of Nursing students	27
4.13	Association between Posttest level of knowledge score and nursing students Demographic variables (Experimental group)	29
4.14	Association between posttest level of Skill score and nursing students Demographic variables (Experimental group)	30
4.15	Association between posttest level of Self-efficacy score and nursing students Demographic variables (Experimental group)	31

LIST OF FIGURES

FIGURE NO	LIST OF FIGURES	PAGE NO
3.1	Schematic Representation of the Methodology.	17
4.1	Line graph shows the pretest, posttest-I and posttest-II of Experimental and Control group Knowledge score among Nursing students	23
4.2	Line graph shows the pretest, posttest-I and posttest-II of Experimental and Control group Skill score among Nursing students	25
4.3	Line graph shows the pretest, posttest-I and posttest-II of Experimental and Control group Skill score among Nursing students	26
4.4	Scatter diagram with regression estimate shows the moderate correlation between Knowledge gain score, Skill gain score and Self-efficacy among Nursing students	28

LIST OF ANNEXURES

SL. NO	LIST OF ANNEXURES
1	RESEARCH METHODOLOGY EXAM PASS CERTIFICATE
2	RESEARCH METHODOLOGY COURSE CERTIFICATES CONDUCTED BY SBV UNIVERSITY.
3	IHEC APPROVAL LETTER
4	RESEARCH METHODOLOGY , BIOSTATISTICS COURSE CERTIFICATES CONDUCTED BY SBV UNIVERSITY
5	SCIENTIFIC PAPER (ORAL) PRESENTATION CERTIFICATES
6	SCOPUS INDEXED JOURNAL PUBLICATIONS
7	ENLS, ACLS & BLS INSTRUCTOR COURSE COMPLETION CERTIFICATE RELATED TO THESIS

ABBREVIATIONS

1. CPR - Cardiopulmonary resuscitation
2. AED - Automated External Defibrillator
2. MI - Myocardial Infarction
3. AHA - American Heart Association
4. PR - Pulse Rate
5. OHCA - Out-of-Hospital Cardiac Arrests.
6. DF - Degrees of freedom
7. NS - Not significant
8. S - Significant
9. MD - Mean difference
10. SD - Standard deviation

CHAPTER -I
INTRODUCTION

1.1 BACKROUND OF THE STUDY:

Globally, cardiac arrest kills 115,000 people every day, and the World Health Organization reports 5.8 million heart-related deaths each year. In India, less than 2% of the population is CPR-aware, with 4,280 cases per 100,000 yearly and 112 deaths per minute. PR is vital but has low success rates in out-of-hospital cardiac arrests (OHCA).Globally, OHCA survival rates are 5-10%, while in India, they drop to 2-3%, highlighting training gaps among healthcare providers. Urban areas like Bangalore show better CPR awareness than rural regions but still lack proficiency.

Effective learning in nursing education demands innovative teaching strategies that bridge theoretical knowledge with practical application. Simulation-based learning has emerged as a transformative approach in health education, providing a safe and controlled environment for skill development. Among various simulation techniques, oral debriefing after simulated CPR scenarios stands out as a method to consolidate learning. Debriefing facilitates reflection, reinforces knowledge, and addresses skill deficiencies, making it a crucial component of simulation-based education. Moreover, it fosters the self-efficiency required for students to confidently apply their skills in real-world emergencies.

This study seeks to address these gaps by evaluating the effectiveness of oral debriefing in simulated CPR learning among nursing students in selected Indian nursing colleges. By exploring its influence on knowledge, skill, and self-efficacy, the research aims to provide evidence-based recommendations for improving CPR training programs, addressing regional disparities, and ultimately contributing to better emergency care outcomes.

The chapter will also include a statement of the problem, the purpose of the study, Additionally, key terms will be defined, assumptions and limitations.

1.2 Need for the Study:

Cardiac arrest is a leading cause of death globally, with a significant gap in CPR knowledge, skill and self-efficacy. Studies on effective oral debriefing method are still emerging, with only 2% of India's population familiar with CPR, there is a major gap in knowledge and self-efficacy to perform life-saving techniques. Oral debriefing could improve knowledge, skill and self-efficacy, especially in nursing

students. As a growing metropolitan area, Bangalore has a diverse population with varying access to healthcare training. Studies on CPR training and the impact of oral debriefing are necessary to bridge gaps in knowledge, skills, and self-efficacy among nursing students.

This study can directly address the existing gaps in CPR education, focusing on improving the knowledge, skill and self-efficacy of nursing students. This study will improve the knowledge, skills, and self-confidence while delivering care. Hence the investigator has decided to do demonstration through oral debriefing session with high fidelity mannequin to assess the effectives of oral debriefing to enhances the knowledge, skills, and self-efficacy during simulation teaching among nursing students.

1.3 AIM:

To evaluate the effect of oral debriefing with simulated CPR learning on knowledge, skill and self-efficacy among nursing students in selected colleges.

1.4 OBJECTIVES OF THE STUDY:

- To assess the baseline knowledge, skill and self - efficacy on simulated learning in control group and experimental group.
- To assess the effectiveness of oral debriefing on knowledge, skill and self – efficacy among the experimental group.
- To assess the correlation between knowledge, skill and self-efficacy in experimental group.
- To determine the association between posttest level of effectiveness of oral debriefing with simulated CPR learning among nursing students and their selected demographic variables in the experimental group.

1.5 RESEARCH HYPOTHESIS:

H1**:** There is a significant difference between the pre-test levels of knowledge, skill, and self-efficacy of nursing students in the experimental and control groups.

H2: There is a significant difference in the post-test levels of knowledge, skill, and self-efficacy between the experimental and control groups.

H3: There is a significant correlation between the pre-test and post-test knowledge, skill, and self-efficacy on oral debriefing with simulated learning in the experimental group.

1.6 OPERATIONAL DEFINITIONS:

1.Effect: Refers to the significant gain in knowledge, skill, and self-efficacy of nursing students regarding CPR after oral debriefing which are elicited through a notable improvement in their CPR competence.

2.Oral Debriefing: Oral debriefing with CPR learning is an Emergency process used at six nursing colleges in Bangalore to improve nursing student's knowledge, skills and self-efficacy when providing emergency health care services. This includes motivational interviews, literacy training, scenario – based activities, debriefing sessions and evaluations.

3.Cardiopulmonary Resuscitation (CPR): A simple technique used to restore and maintain airway, breathing, and circulation in victims of cardiac arrest.

4. Knowledge: The sum of what is known regarding oral debriefing on cardiopulmonary resuscitation.

5. Skills: Significant gains in the physical skills of nursing students, which include movement, coordination, dexterity, grace, strength, and speed.

6.Self-efficacy: An assessment of students' level of self-confidence and satisfaction.

7.Simulated Learning: An organized teaching and demonstration technique that mimics the real-life learning environment of CPR using a mannequin, which enhances the knowledge, skill, and self-efficacy of nursing students.

8.Nursing Students: Students enrolled in the second year of the B.Sc Nursing program in selected nursing colleges located in Bangalore.

9.Nursing Colleges: Selected nursing colleges located in different zones of Bangalore, affiliated with Rajiv Gandhi University of Health Sciences.

10.True Experimental Study: A type of trial for true experimental studies that satisfies all three criteria: randomization, control, and manipulation.

1.7 ASSUMPTION:

- Nursing students may not have adequate knowledge, skill, and self-efficacy about CPR simulation based learning.
- Oral debriefing will improve students' knowledge, skill, and self-efficacy about CPR simulation based learning.

1.8 DELIMITATION:

- The study is limited to B.Sc. Nursing students from selected colleges in Bangalore, limiting generalizability to other regions or countries.

- The study only examines the effect of oral debriefing combined with simulated CPR learning, excluding other debriefing methods

1.9 CONCEPTUAL FRAMEWORK:

The present study aims to evaluate the effect of oral debriefing with simulated CPR learning on knowledge, skill and self – efficacy among students' conceptual framework frame work for this present study on the basis of Kolb's Experimental learning theory[5]

CHAPTER-II

REVIEW OF LITERATURE

This chapter deals with the various literature reviewed for the study and details of the literature are described under various sections as follows

2.1 Reviews related to oral debriefing
2.2 Reviews related to the effectiveness of oral debriefing
2.3 Reviews related to simulated learning
2.4 Reviews related to knowledge
2.5 Reviews related to skills
2.6 Reviews related to self-efficacy in simulation learning.

2.1. **Review related to Oral Debriefing:**

Zhang et al. (2023) conducted a study to evaluate the effectiveness of oral debriefing after simulated CPR sessions among medical students. The study involved 100 students in the experimental group who received oral debriefing post simulation. Results showed significant improvements in all domain- knowledge scores increased from 62.4% (SD =7.9) to 82.3% (SD = 6.2), skill proficiency improved from 69.1% (SD = 8.4) to 88.7% (SD =7.3), and self-efficacy rose from 5.8 (SD = 1.9) to 7.6(SD = 1.4), all $p< 0.001$. These findings highlight the role of oral debriefing in reinforcing CPR competency.[9]

2.2. Study Related to the Effectiveness of Oral Debriefing:

In a study conducted by Kelly M et al., the effectiveness of instructor-led (IL) versus peer-led (PL) debriefing was compared to assess improvements in CPR skills, simulation satisfaction, and debriefing quality among nursing students. The study included 65 third-year nursing students in clinical placement, who were divided into IL (n=36) and PL (n=29) groups. Results indicated that students in the IL debriefing group demonstrated significantly better CPR performance, greater satisfaction with the

simulation experience, and higher debriefing quality scores than those in the PL group. These findings suggest that IL debriefing is more effective in enhancing skills, increasing satisfaction, and providing higher-quality debriefing for nursing students compared to PL debriefing.[10]

2.3. Studies Related to Simulated Learning:

Studies show that simulation – based training enhances knowledge, skills, satisfaction, and self confidence in nursing students. Demirtas et al. (2020) found that CPR simulation training significantly improved students' knowledge and skills (p < o.oo1), with participants reporting initial anxiety but high satisfaction post-training.[11]

Kassabry (2023) examined High- Fidelity simulation (HFS) based ACLS training in Palestine, revealing significant self – efficacy improvements, enhanced attitudes, and reduced anxiety, Female students and those with prior resuscitation experience showed higher post-simulation self – efficacy, highlighting HFS as an effective training tool.[12]

2.4. Reviews Related to Knowledge:

Oteir et al. (2019) conducted a study to analyze the degree of CPR knowledge among Jordanian students of allied health professions (AHP). This cross-sectional study included 883 students, 78.5% of whom had no prior CPR training. The average CPR knowledge score was 3.9 out of 10, with trained participants marginally outperforming those without training. Training was hampered by a lack of knowledge and time. The study emphasized the importance of increased CPR instruction, advocating for mandatory and frequent training sessions, as well as media-based learning methodologies.[14]

2.5. Reviews Related to Skill:

Ali et al. (2021) reviewed CPR training strategies during COVID – 19, analyzing 20 studies from 978 screened articles. Findings showed that standard in person training (ST) led to better chest compression, skill and emergency response time, while alternative methods (AT) (hybrid/online) improved scene safety assessment, response time, and knowledge retention. The study highlights AT as an effective alternative for large – scale CPR training, especially during public health crises.[15]

2.6. Reviews Related to Self-Efficacy in Simulation Learning:

Yousefian and Mohamadieizi (2023) sought to analyze the impact of the Information-Motivation-Behavioral (IMB) skills model on high school students' CPR self-efficacy[16]. A semi-experimental approach was adopted, with 56 students divided into two groups: one received e-learning, while the other received instruction based on the IMB model. A CPR self-efficacy scale with 18 items was used to assess self-efficacy before and after the session. While there was no initial difference between the groups, the

IMB group exhibited a substantial increase in self-efficacy following the intervention. The study suggests that the IMB model is an effective strategy for improving students' CPR self-efficacy.

2.7 Research Gap:

Few studies focus solely on oral debriefing's effects on students' clinical skills and self-efficacy, leaving its unique impact unclear. Although some research shows immediate gains in knowledge and skills, data on long-term retention are sparse. The varying fidelity levels used in simulations also complicate generalization, as each may differently affect learning and engagement. Demographic factors and emotional support, both important for student outcomes, are often overlooked.[17] Additionally, most studies are conducted in high-income countries, limiting culturally relevant insights for regions like India. Lastly, while oral debriefing appears to boost self-efficacy, the mechanisms remain poorly understood. Addressing these gaps could enhance our understanding of oral debriefing's role in nursing education, particularly for sustained knowledge, skill retention, and self-efficacy.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 RESEARCH APPROACH: Quantitative research

3.2 RESEARCH DESIGN: True Experimental Study using a Pretest and posttest control group design.

3.3 RESEARCH VARIABLE:

INDEPENDENT VARIABLE Oral Debriefing with simulated learning

DEPENDENT VARAIABLE Knowledge, skill, and self-efficacy

DEMOGRAPHIC VARIABLE: Age, Sex, Fathers Education, Mothers Education, Type of residential area, Religion, Previous knowledge on CPR, Method of teaching they received knowledge.

EXTRANEOUS VARIABLE: Education, Previous knowledge on CPR.

3.4 STUDY SETTING: The investigation was conducted in the selected nursing colleges in Bangalore such as Sapthagiri Nursing College, Goutham college of nursing, Gayathri college of Nursing, Sushtruthi college of nursing, Dhanwantri college of nursing, Mathru college of Nursing in Bangalore.

3.5 POPULATION:

Target Population: All the B.sc Nursing students who are doing Second year B.Sc nursing program in the nursing college

Accessible Population: B.Sc. Nursing 2nd year student aged between 18 – 21years and studying in selected nursing colleges in Bangalore.

Sample : B.Sc. Nursing 2nd year student aged between 18 – 21years meeting inclusion criteria

3.6 SAMPLING TECHNIQUE:

Table: 3.1 Sampling technique employed in the study:

<table>
<tr><td>Allocation of study area</td><td colspan="2">Multistage cluster sampling Method</td></tr>
<tr><td>Selection of study participants after survey</td><td colspan="2">Randomization(lottery method)</td></tr>
<tr><td rowspan="3">Enrollment of Participants in the study</td><td colspan="2">Block Randomization</td></tr>
<tr><td>Intervention Group</td><td>Control Group</td></tr>
<tr><td>Monday, Wednesday, Friday</td><td>Tuesday, Thursday, Saturday</td></tr>
</table>

3.7 SAMPLE SIZE AND POWER ANALYSIS:

Based on the Shahriar Ostovar et.al study, the average standard deviation of psychomotor skills score is 5.12. Required sample size will be 103 nursing students per group to demonstrate 2 skill score mean difference between study and control group (16.9 to 18.9) with a power of the study 80% (type II error $\beta = 20\%$) and at a 95% confidence of result (type 1 error $\alpha = 5\%$). After allowing 10% of dropout rate, final sample size will be 120 students per group (120 study + 120 control) will be included in this study.

$$n = \frac{2\sigma^2 (Z_\alpha + Z_\beta)^2}{d^2}$$

σ = 5.12

α = 1.96(95% confidence level)

β = 0.84(80% power of the study)

d = 2 (meaningful difference)

$$n = \frac{2(5.12)^2 (1.96 + 0.84)^2}{2^2}$$

= 103 per group

Drop out =10% =103x10/100 =11

So 103+11=114 =120 nursing students per group

3.8 SAMPLE SIZE IN THE STUDY: The total sample size is 240, out of 120 Experimental group and 120 Control group.

3.9 SAMPLING CRITERIA:

Inclusion Criteria:

- Colleges that have high-fidelity CPR mannequins
- Second – year B. Sc Nursing students studying in various nursing colleges in Bangalore.
- Second – year B. Sc Nursing students who are willing to participate in the study.

Exclusion Criteria:

- Nursing students with severe medical conditions and mental illness.
- Nursing students already certified in CPR techniques.

Withdraw Criteria:

Participants were allowed to withdraw from the study at any time they feel uncomfortable and could not cooperate for the study.

Rescue Criteria: Not applicable

3.10 DATA ANALYSIS TOOL:

A structured tool consisting of 4 sections was used in the study. The sections included in the study are as follows

Section A: Demographic variables

Section B: Self-Administered knowledge questionnaire

Section C: Skill Assessment 4-point Likert scale (AHA modified scale).

Section D: Self- Efficacy – 4-point rating scale (Banduras Modifies scale)

Section A: Section A consists of a demographic characteristic of the participants.

Section B: Section B consist of Self-administered knowledge questionnaire designed to assess various CPR knowledge questionnaire among nursing students. It includes Anatomy and Physiology, General CPR Knowledge, Airway, Breathing, circulation and AED.

Section C: Section C consists of a skill assessment check list – 4 point Likert scale. The scale is modified version of the American Heart Association, and the scale meant to find out practical skill of the 2nd year B. Sc Nursing student. The scale consists of the 10 items. Each item is marked against Very poor, Fair, Good and Excellent. Each will be scored as 1,2,3 and 4 respectively. Of the 10 items 1 to 5 questions were Rescuer Adult Skill Evaluation and 6 to 10 were Rescuer AED skills Evaluation. The total score of the tool were 40.27 – 40 was Satisfactory, the 14 – 26 score were fair and 0-13 were considered as very poor.

Section D: Section C is the Modified Bandura's Self Efficacy scale, meant to find the satisfaction level of the students. The scale consists of the 4 components namely,[7] Not at all true, Hardly true, Moderately true, Exactly true. Each component consists of 4,3,2, and 1 item respectively. Each item was derived in such a way that the participants could express their Satisfaction level under the criteria of Adequate, moderately adequate, inadequate; which will be scored as 1,2,3, and 4 respectively. The total score is 60. 0-20 is considered as Inadequate, 21-40 is considered Moderately adequate and 41-60 is considered as Adequate level of self-efficacy.

3.11 VALIDITY OF THE TOOL:

The study was discussed in the research advisory committee and got approval. The suggestions were incorporated and later sent for validation from the external experts. Content validity was obtained from 5 medical experts,8 Nursing experts and 1 statistician Suggestions given by the experts were incorporated in the main study.

3.12 RELIABILITY OF THE TOOL:

The instrument used in the study is more standardized and widely used in many researchers. The reliability of the tool was assessed by using Test re-test and Cronbach Alpha method. Knowledge score reliability Correlation Coefficient value was 0.83(test-re-test) and skill score reliability correlation coefficient value was 0.87(alpha method) and Self-Efficacy score reliability correlation coefficient value is 0.88(alpha method).

3.13 PILOT STUDY:

Pilot study was conducted from Jan to May 2023, a pilot study was conducted with 12 participants in both the intervention and control groups in 2 different nursing colleges namely Sri Venkateshwara college of nursing and shri Santini college of nursing selected randomly from two areas. The Self-administered knowledge questionnaire was used for initial assessments. Twelve Nursing students were randomly selected using lottery method. Pre-tests was conducted, followed by interventions and posttest at 1 and half moth and 3 month and another one and half month, followed by evaluations were done nursing students. The study was found to be feasible. No major modifications were done after pilot study in the tool.

3.14 DATA COLLECTION PROCEDURE:

Data collection for the study was commenced in January 2022 and concluded in December 2023. The study focused on 2nd year. Nursing students aged 18-21years in six nursing colleges – Goutham College of nursing, Sapthagiri College of Nursing, Dhanwantri college of Nursing, Mathru College of Nursing, Shustruti College of Nursing, Gayathri College of Nursing. Three colleges were randomly assigned as Intervention groups and three as Control group using simple random sampling.2nd year B.Sc. nursing students received training on the Cardiopulmonary Resuscitation, oral debriefing with Procedure

Demonstration self-administered Knowledge questionnaire was used for measuring Knowledge, AHA 4-point assessment check list was used for assessing skill and, Banduras modified 4 point rating scale and for Evaluation of reflection of life saving emergency procedure was used for assessing the self-efficacy.

STEPS ADOPTED FOR DATA COLLECTION:

1. **Survey:** B.Sc. Investigator surveyed 200 2nd year B.Sc. Nursing students in Experimental group and control group 400 in each are using the Self-administered knowledge questionnaire to identify Nursing students.

- **Sample Allocation:** From 240 Eligible samples (120 in the intervention group and 120 control group), 240 BSc Nursing students were randomly selected and invited to participate. They were scheduled to visit Oral debriefing with CPR Simulated learning on designated days.
- **Intervention:** Participants in the intervention group were provided with the Oral debriefing CPR learning in three sittings who were then evaluated for one and half month.
- **Pre- Test:** Baseline assessments were conducted including CPR knowledge, skill and self-efficacy. Participants underwent motivational interview to discuss correct the behaviors, and pre- brief and debrief to set goals for change.
- **Oral Debriefing with CPR training:** Participants received education on CPR Prevention through multimedia and interactive sessions, focusing on CPR procedure and lifesaving emergency

AHA Guidance: High-fidelity mannequins equipped with AEDs, along with visual aids, posters, and blackboards, were used to explain the CPR procedure and demonstrate step-by-step life-saving techniques effectively.

CPR Session: Demonstration of CPR procedure aimed at improving cardiovascular and Respiratory and Brain oxygenated blood circulation mechanism were conducted. Participant were given steps of CPR procedure with CPR routines.

Control group: Participants continued with regular teaching and learning activities; no additional interventions were applied. They received periodic assessments and educational material on CPR procedures, waitlisted intervention was given after the completion my study.

Evaluation: Evaluation was done by teachers and lab in charges and with their help Scenario based return demonstration was performed. Students will pick chits, each containing a specific scenario, and

perform CPR on high-fidelity mannequins accordingly. Each student will demonstrate their skills based on their knowledge, practical ability, and self-efficacy.

1.Post – Test:

- **Post -Test 1: Conducted one and half month after the Intervention.**
- **Post – Test 2: Conducted another three months after the intervention.**

Participants were informed about post-test procedure in advance, this ensured clarity regarding the assessment process and their role, Knowledge was assessed using a self-administered questionnaire. Participants completed the questionnaire independently, providing insights into their understanding of the concepts. The skill of the participants was evaluated using the AHA 4-point Assessment sheet. This tool measured their performance in simulated scenarios with standardized criteria. Banduras Self-Efficacy 4-point Likert scale was employed to assess the participants confidence in performing tasks related to intervention. Response were recorded to analyze the changes over time through debriefing and underwent similar assessments as the pre-test, posttest 1 and posttest 2 and data was recorded with evaluation sheet.

3.15 QUALITY ASSUARANCE OF THE INTERVENTION:

Quality of the intervention was monitored by Guide the Principal of college of nursing in selected nursing colleges Bangalore.

Intervention High fidelity mannequin was used for the study Guide for assuring the quality.

3.16 ETHICAL CONSIDERATION:

The study was proposed in various Research Advisory Committee meetings and got revised. The study was also gone scrutinized for ethical concerns in the IEC/ Sapthagiri Medical College and Research Center (IEC Approval NO: SIMS/IEC/02/202 1) .

Participants were informed regarding the purpose of the study. Benefits were explained. Flexibility in withdrawal from the study was also ensured.

3.17 CONFIDENTIALITY:

Informed consent was obtained. Participants identities were blinded using identifiers through a single blinded method to maintain confidentiality and prevent bias. Below is a step-by-step explanation of how this was implemented:

Benefits and welfare for participants:

Each participant was assigned an enrollment number, a schedule for their second visit was planned and provided in advance.

Participants were assured of free training for second – year Bsc nursing students in a selected nursing college for six months.

Evaluation and Debriefing Session:

A structured evaluation and debriefing session was conducted to reinforce learning and assess performance.

This approach aimed to enhance learning outcomes, improve emergency care skills, and facilitate the evaluation of oral debriefing methods effectively.

3.18 PLAN FOR DATA ANALYSIS:

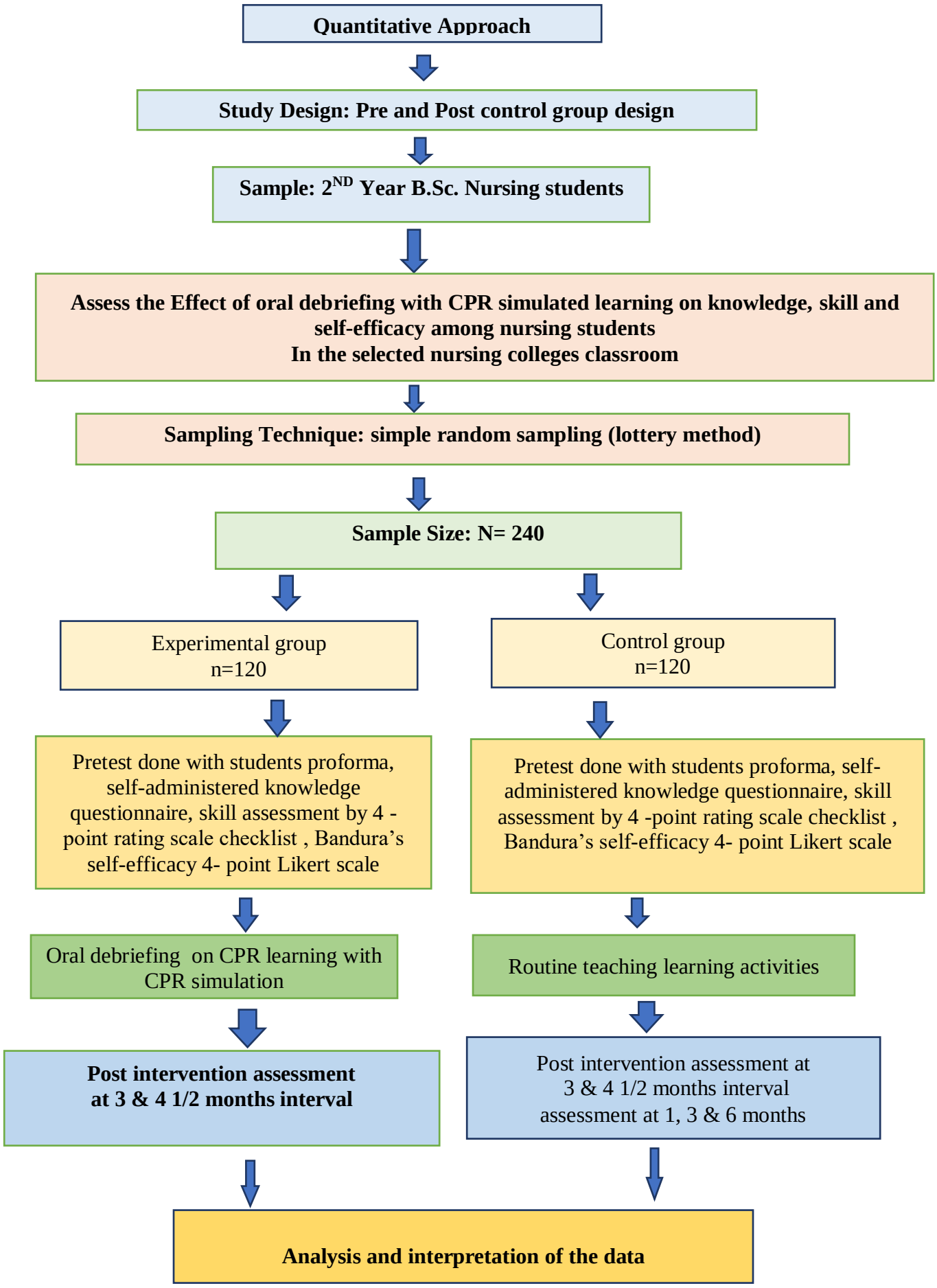
Descriptive Statistics:

Mean and Percentages: Used to descriptive demographic variables, effect of oral debriefing with CPR learning in both intervention and control group and to compare the percentage of oral debriefing between the groups

Inferential Statistics:

- **Paired t-Test:** Used to compare oral debriefing before and after the intervention within the intervention and control groups.
- **ANOVA:** Applied to assess the effectiveness of the oral debriefing with CPR learning simulation on knowledge, skill and self-efficacy
- **Chi-Square Test:** Utilized to examine the association between selected demographic variables and post-test data on oral debriefing with CPR simulation learning in both intervention and control groups.
- **Karl Pearson correlation coefficient method**: To assess the correlation between knowledge, skill, and self-efficacy on oral debriefing with simulated CPR learning among experimental group.
- **one-way analysis of variance F-test and student independent t-test:** To find an association between posttest level of effectiveness of oral debriefing with simulated CPR learning among nursing students with their selected demographic variable in the experimental group

Fig.3.1 Schematic Representation of the Methodology.


Quantitative Approach
Study Design: Pre and Post control group design
Sample: 2ND Year B.Sc. Nursing students
Assess the Effect of oral debriefing with CPR simulated learning on knowledge, skill and self-efficacy among nursing students
In the selected nursing colleges classroom
Sampling Technique: simple random sampling (lottery method)
Sample Size: N= 240
Experimental group
n=120
Control group
n=120
Pretest done with students proforma, self-administered knowledge questionnaire, skill assessment by 4 -point rating scale checklist , Bandura's self-efficacy 4- point Likert scale
Pretest done with students proforma, self-administered knowledge questionnaire, skill assessment by 4 -point rating scale checklist , Bandura's self-efficacy 4- point Likert scale
Oral debriefing on CPR learning with CPR simulation
Routine teaching learning activities
Post intervention assessment at 3 & 4 1/2 months interval
Post intervention assessment at 3 & 4 1/2 months interval assessment at 1, 3 & 6 months
Analysis and interpretation of the data

CHAPTER -IV

DATA ANALYSIS & INTERPRETATION

This chapter deals with the detailed result analysis of the study. The results have been described under various sections based on the objectives.

Section A – Description of the demographic variables of the participants in the Experimental and control group in pre test

Table 4.1 Description of the demographic variables of the participants in the Experimental and control group.

Table 4. 1: DEMOGRAPHIC VARIABLES: N=240(Intervention group 120, control group 120)

Demographic variables		Group				Chi square test
		Experimental(n=120)		Control(n=120)		
		N	%	N	%	
Age in years	18 years	15	12.50%	12	10.00%	χ^2=0.99 p=0.81(NS)
	19 years	45	37.50%	42	35.00%	
	20 years	44	36.67%	51	42.50%	
	21 years	16	13.33%	15	12.50%	
Sex	Male	62	51.67%	54	45.00%	χ^2=1.07 p=0.30(NS)
	Female	58	48.33%	66	55.00%	
Father's education	Educated	101	84.17%	103	85.83%	χ^2=0.13 p=0.72(NS)
	Illiterate	19	15.83%	17	14.17%	
Mother's education	Educated	104	86.67%	100	83.33%	χ^2=0.52 p=0.47(NS)
	Illiterate	16	13.33%	20	16.67%	
Type of residential area	Urban	49	40.83%	45	37.50%	χ^2=1.92 p=0.38(NS)
	Rural	48	40.00%	43	35.83%	
	Suburban	23	19.17%	32	26.67%	
Type of family	Joint family	33	27.50%	28	23.33%	χ^2=0.55 p=0.46(NS)
	Nuclear family	87	72.50%	92	76.67%	
Religion	Hindu	73	60.83%	74	61.67%	χ^2=0.92 p=0.63(NS)
	Muslim	23	19.17%	18	15.00%	
	Christian	24	20.00%	28	23.33%	
Previous knowledge about CPR	Yes	35	29.17%	23	19.17%	χ^2=3.27 p=0.07(NS)
	No	85	70.83%	97	80.83%	
If yes what is the source of knowledge	Nil	85	70.83%	97	80.83%	χ^2=5.70 p=0.13(NS)
	Mass media	16	13.33%	6	5.00%	

	Teachers	17	14.17%	16	13.33%	
	Health care professionals	2	1.67%	1	0.83%	
	Friends	0	0.00%	0	0.00%	
In which method of teaching he received knowledge	Nil	85	70.83%	97	80.83%	χ^2=4.18 p=0.12(NS)
	Lecture Method	25	20.84%	19	15.84%	
	Video Assisted teaching	10	8.33%	4	3.33%	

p> 0.05 not significant NS= not significant

The above table shows that both the experimental group and control group's participants are Homogenous in nature.

The demographic analysis compared the experimental and control groups across various variables using Chi-square tests. Key findings include:

1. **Age and Sex**: Both groups have a similar distribution in terms of age and gender, with no significant difference ($p > 0.05$).
2. **Parental Education**: The majority in both groups had educated parents, with no significant difference.
3. **Residential Area**: Distribution across urban, rural, and suburban areas showed no significant difference between the groups.
4. **Family Type**: Nuclear families dominated in both groups, and the difference was not significant.
5. **Religion**: The religious distribution (Hindu, Muslim, Christian) was similar in both groups.
6. **Previous CPR Knowledge**: While slightly more participants in the experimental group had prior knowledge of CPR, the difference was not statistically significant.
7. **Source and Method of CPR Knowledge**: Both groups reported "nil" as the most common response, with minimal differences in the influence of mass media, teachers, and video-assisted teaching
8. The p-values across all comparisons exceeded 0.05, indicating no statistically significant differences between the groups for any variable. This suggests that the experimental and control groups were well-matched demographically.

Section B – Description of the of Pretest Level of knowledge score among Experiment and Control group of Nursing Students

Table 4.2: Distribution of Pretest Level of knowledge score among Experimental and Control group of Nursing Students

N=240 (120+120)

Assessment	Level of knowledge	Group				Chi-square value	P value
		Experimental Group (n=120)		Control Group (n=120)			
		No.	%	No.	%		
Pretest	Inadequate	78	65.00%	69	57.50%	1.53	0.47 (NS) DF=2
	Moderate	37	30.83%	46	38.33%		
	Adequate	5	4.17%	5	4.17%		

DF= Degrees of freedom
P>0.05 not significant NS= not significant

The Table 4.2 denotes the comparison of level of knowledge score between experimental and control group of nursing students. In the pre-test of experimental group, 78 (65%) had inadequate knowledge, 37(30.83%) had moderate knowledge and 5(4.17%) had adequate knowledge on oral debriefing with simulated CPR learning. Whereas in the control group, 69 (57.50%) had inadequate knowledge, 46(38.33%) had moderate knowledge and 5(4.17%) had adequate knowledge. The calculated chi-square value of 1.53 was not statistically significant at $p<0.05$ level. This clearly indicates that there was no significant difference in the pre-tests level of knowledge among the nursing students between the groups.

Table 4.3: Distribution of Pretest Level of skill score among Experimental and Control group of Nursing students

N=240 (120+120)

Assessment	Level of SKILL	Group				Chi-square value	P value
		Experimental Group (n=120)		Control Group (n=120)			
		No.	%	No.	%		
Pre-test	Poor	101	84.17%	102	85.00%	0.03	0.85 (NS) DF=1
	Moderate	19	15.83%	18	15.00%		
	Good	0	0.00%	0	0.00%		

DF= Degrees of freedom S= significant NS= not significant
P>0.05 not significant P≤0.05 significant
***P≤0.001 very high significant

The Table 4.3 denotes the comparison of level of skill score between experimental and control group of nursing students. In the pretest of experimental group, 101(84.17%) had poor skill and 19(15.83%) had moderate skill on oral debriefing with simulated CPR learning. Whereas in the control group, 102(85%) had poor skill and 18(15%) had moderate skill. The calculated chi-square value of 0.03 was not statistically significant at $p<0.05$ level. This clearly indicates that there was no significant difference in the pretest level of skill among the nursing students between the groups.

Table 4.4: Distribution of Pretest Level of Self-efficacy score among Experimental and Control group of Nursing students

N=240 (120+120)

Assessment	Level of self-efficacy	Group				Chi-square value	P value
		Experimental Group (n=120)		Control Group (n=120)			
		No.	%	No.	%		
Pretest	Inadequate	100	83.33%	101	84.17%	0.03	0.86 (NS) DF=1
	Moderate	20	16.67%	19	15.83%		
	Adequate	0	0.00%	0	0.00%		

DF= Degrees of freedom S= significant NS= not significant
P>0.05 not significant P≤0.05 significant
***P≤0.001 very high significant

The table 4.4 illustrates the comparison of level of self-efficacy score between experimental and control group of nursing students. In the pretest of experimental group, 100(83.33%) had inadequate self-efficacy and 20(16.67%) had moderate level of self-efficacy on oral debriefing with simulated CPR learning. Whereas in the control group, 101(84.17%) had inadequate self-efficacy and 19(15.83%) had moderate level of self-efficacy. The calculated chi-square value of 0.03 was not statistically significant at $p<0.05$ level. This clearly indicates that there was no significant difference in the pretest level of self-efficacy among the nursing students between the groups.

Table 4.5: Distribution of Pretest, Posttest-I and Posttest-II Level of knowledge score among Experimental and Control group of Students

N=240 (120+120)

Assessments	Level of knowledge	Group				Chi-square value	P value
		Experimental Group (n=120)		Control Group (n=120)			
		No.	%	No.	%		
Pretest	Inadequate	78	65.00%	69	57.50%	1.53	0.47 (NS) DF=1
	Moderate	37	30.83%	46	38.33%		
	Adequate	5	4.17%	5	4.17%		
Posttest-I	Inadequate	46	38.33%	65	54.17%	33.824	**0.001*** (S) DF=1**
	Moderate	32	26.67%	49	40.83%		
	Adequate	42	35.00%	6	5.00%		
Posttest-II	Inadequate	11	9.17%	61	50.83%	91.02	**0.001*** (S) DF=2**
	Moderate	33	27.50%	50	41.67%		
	Adequate	76	63.33%	9	7.50%		

DF= Degrees of freedom S= significant NS= not significant
P>0.05 not significant P≤0.05 significant
***P≤0.001 very high significant

The table 4.5 illustrates the distribution of Pretest, Posttest-I and Posttest-II Level of knowledge score among Experiment and Control group of Students. In the pretest, there was no significant difference in the level of knowledge among the nursing students which was evident from the calculated chi-square value of 1.53 statistically not significant at $p<0.05$.

In the posttest-I, after the intervention in the experimental group, 46(38.33%) had inadequate knowledge, 42(35%) had adequate knowledge and 32(26.67%) had moderate knowledge whereas in the control group after the normal routine, 65(54.17%) had inadequate knowledge, 49(40.83%) had moderate knowledge and 6(5%) had adequate knowledge. In the posttest-II, after the intervention in the experimental group, 76(63.33%) had adequate knowledge, 33(27.50%) had moderate knowledge and 11(9.17%) had inadequate knowledge whereas in the control group after the normal routine, 61(50.83%) had inadequate knowledge, 50(41.67%) had moderate knowledge and 9(7.50%) had adequate knowledge.

The calculated chi-square value of 33.824 and 91.02 in the posttest-I and posttest-II was found to be statistically significant at $p<0.001$ level which indicates that there was significant difference in the posttest-I and posttest-II level of knowledge between the groups. This finding infers that after the intervention the nursing students in the experimental group gained more knowledge when compared to the nursing students in the control group who had undergone routine teaching learning activities.

Table 4.6: Mean and Standard Deviation of the Level of knowledge score During Pretest posttest-I and Posttest-I between Group Wise

N=240 (120+120)

Groups	Pretest		Posttest-I		Posttest-II	
	Mean	SD	Mean	SD	Mean	SD
Experimental (n=120)	12.00	1.60	16.50	1.31	18.92	1.16
Control (n=120)	11.58	2.23	11.83	2.25	12.17	1.70

The table 4.6 presents the mean and standard deviation of knowledge scores in pretest, posttest-I and posttest-II in the experimental and control group. The mean knowledge score for the experimental group subjects was found to be 12.00 before the intervention. After the intervention, the level of knowledge was improved to 16.50 during posttest-I, and further improved to 18.92 in posttest-II. The mean knowledge related to oral debriefing with simulated CPR learning was found to be 11.58, 11.83 and 12.17 at the pretest, posttest-I, posttest-II for the control group subjects. To ascertain whether improvement in the two groups are statistically different at all the three assessments, 2x3 ANOVA test with last variable as repeated measure was applied. Here, ‘‘2’’ refers to the two groups i.e. experimental and control groups and “3” refers to the four assessments i.e. pretest, posttest-I and posttest-II. The analysis is presented in table 10.

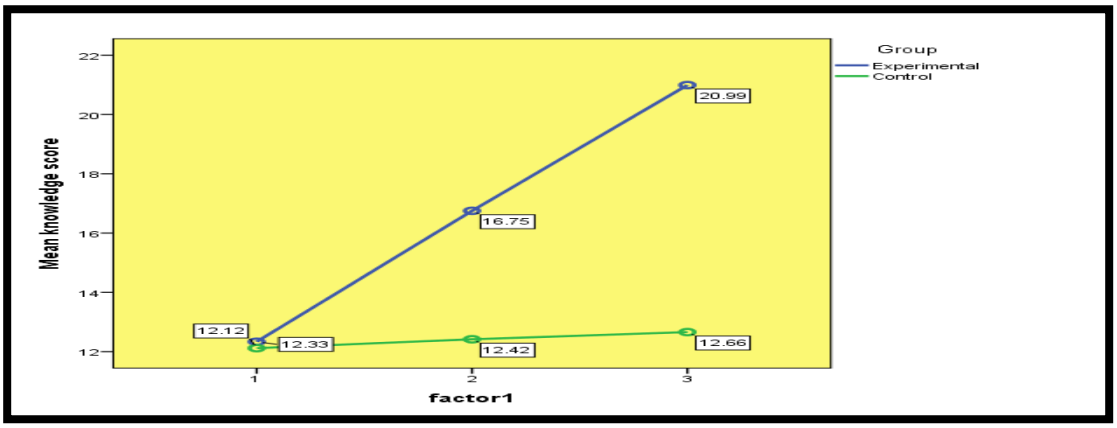


Fig.4.1: Line graph shows the pretest, posttest-I and posttest-II of Experimental and Control group Knowledge score among Nursing students

Table 4.7: Effectiveness of oral debriefing with simulated CPR learning and generalization of knowledge gain score:

N=240 (120+120)

	Assessment	Maximum score	Mean score	% of mean score	Mean knowledge gained score with 95%CI	% of knowledge gained score with 95%CI
Experimental	Pretest	25	12.00	48.00%	6.92 (5.55-8.28)	27.68% (22.20-33.12)
	Posttest-I	25	16.50	66.00%		
	Posttest-II	25	18.92	75.68%		
Control	Pretest	25	11.58	46.32%	0.58 (-0.05-1.22)	2.32% (-2.00%-4.88%)
	Posttest-I	25	11.83	47.32%		
	Posttest-II	25	12.17	48.68%		

The table 4.7 denoted the effectiveness of oral debriefing with simulated cpr learning and generalization of knowledge gain score. The students in the experiment group gained 27.68% knowledge score whereas control group gained only 2.32%, this difference shows the effectiveness of the study .Differences and generalization of knowledge gain score between pretest and posttest score was calculated using and mean difference with 95% CI and proportion with 95% CI

Table 4.8: Comparison of mean skill gain score During Pretest, Posttest-I and Posttest-II among Experimental and Control group

N=240 (120+120)

	Pre-test		***Posttest-I***		***Posttest-II***		**Mean difference**	**One way Repeated measures ANOVA F-test**
	Mean	***SD***	***Mean***	***SD***	***Mean***	***SD***		
Experimental	17.17	5.33	26.07	4.99	33.83	4.96	**18.66**	**F=188.70 p=0.001*** (S)**
Control	16.93	5.41	17.37	5.92	17.52	5.89	**0.59**	F=2.79 p=0.08 (NS)

The table 4.8 portrays the mean and standard deviation of the Level of skill score during pretest, Posttest-I and Posttest-II in the experimental and control group. The mean skill score for the experimental group subjects was found to be 17.17 before the intervention. After the intervention, the level of skill was

improved to 26.07 during posttest-I, and further improved to 33.83 in posttest-II. The mean skill related to oral debriefing with simulated CPR learning was found to be 16.93, 17.37 and 17.52 at the pretest, posttest-I, posttest-II for the control group subjects to ascertain whether the improvement in the two groups are statistically different at all the three assessments, 2x3 ANOVA test with last variable as repeated measure was applied. Here, ‘‘2’’ refers to the two groups i.e. experimental and control groups and “3” refers to the three assessments i.e. pretest, posttest-I and posttest-II. The analysis is presented in table 4.8.

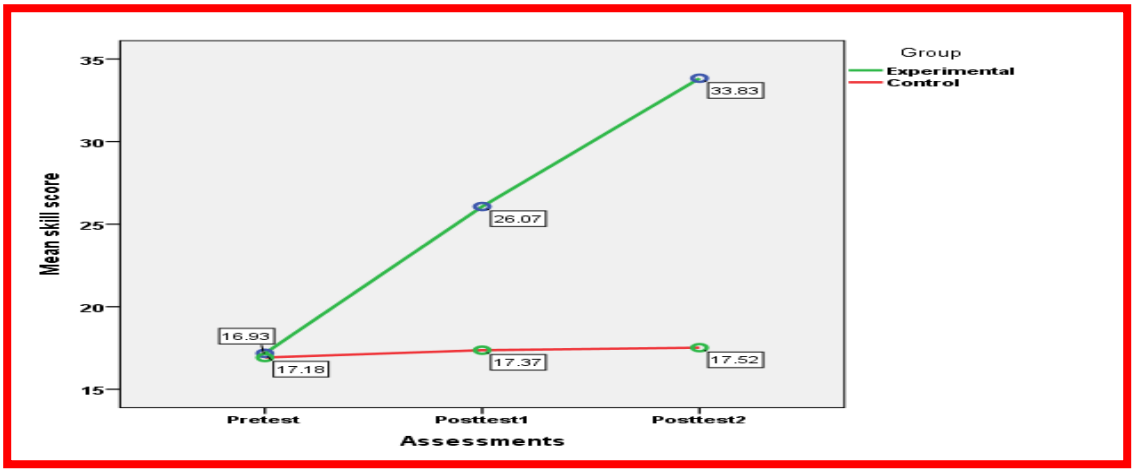


Fig.4.2: Line graph shows the pretest, posttest-I and posttest-II of Experimental and Control group Skill score among Nursing students

Table 4.9 Effectiveness of Oral debriefing with simulated CPR learning and generalization of Skill gain score:

N=240 (120+120)

		Maximum score	Mean score	% of mean score	Mean skill gained score with 95%CI	% of skill gained score with 95%CI
Experimental	Pretest	40	17.17	42.93%	16.66 (15.40-17.91)	41.65% (38.50-44.78)
	Posttest-I	40	26.07	65.18%		
	Posttest-II	40	33.83	84.58%		
Control	Pretest	40	16.93	42.33%	0.59 (-0.21-1.39)	1.47% (-0.53%-3.47%)
	Posttest-I	40	17.37	43.43%		
	Posttest-II	40	17.52	43.80%		

The table 4.9 presents the effectiveness of oral debriefing with simulated CPR learning generalization of skill gain score. Differences and generalization of skill gain score between pretest and

posttest score was calculated using and mean difference with 95% CI and proportion with 95% CI. From the table, it was clear that the nursing students in the experiment group had gained 41.65% skill score whereas control group had gained only 1.47%. This difference in the gained percentage shows the effectiveness of the intervention.

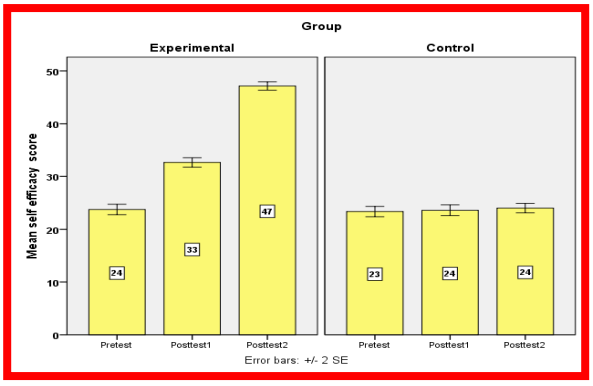
Table 4.10: Multiple comparison of self-efficacy gain score between pretest, posttest-I, and posttest-II using Bonferroni t-test:

N=240 (120+120)

	Assessment	Experiment		Repeated ANOVA test score		Bonferroni t- test		
		Mean	SD	F value	P value	Comparison	MD	P value
Experimental	Pre-test	23.74	5.40	**F=496.29**	**P=0.001*** (S)**	Pre-test vs post-I	8.93	0.001
	Post-test-I	32.67	4.88			Pre-test vs Post-III	25.41	0.001
	Post-test-III	49.15	4.31			Posttest-1 Vs post-test-II	16.78	0.001
Control	Pre-test	23.36	5.40	F=3.02	P=0.07(NS)	Pre-test vs post-I	0.23	0.21
	Post-test-I	23.59	5.60			Pre-test vs Post-III	0.66	0.11
	Post-test-III	24.02	4.95			Post-test-1 Vs post-test-II	0.43	0.18

MD=mean difference P≤0.05 significant P>0.05 not significant
P≤0.01 highly significant P≤0.001 very high significant

The table 4.10 the comparison of pretest, posttest, posttest -I and posttest – II self -efficacy scores showed a significant improvement in the experimental group. The pretest mean self – efficacy score was 23.74, which increased to 49.15 in posttest – II, with a mean difference of 25.41, showing a highly significant difference at p<0.001. Posthoc Bonferroni t-test analysis revealed that self-efficacy improved from 23.74 to 32.67 in Posttest – I (mean difference = 8.93, p<0.001) and further increased to 49.15 in posttest – II (mean difference = 16.78, p<0.001).In contrast, no statistical difference was observed in the control group.



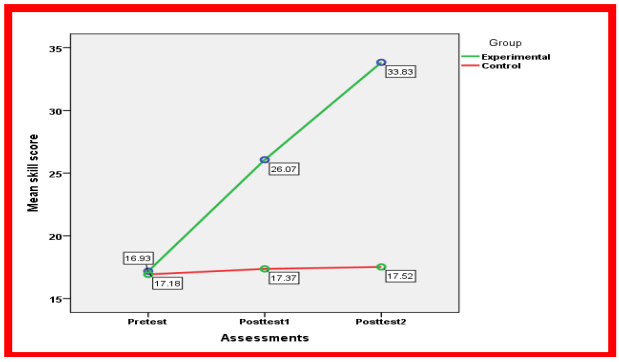


Fig.4.3: Line graph shows the pretest, posttest-I and posttest-II of Experimental and Control group Skill score among Nursing students

Table 4.11: Effectiveness of Oral debriefing with simulated CPR learning and generalization of self-efficacy gain score

N=240 (120+120)

		Maximum score	Mean score	% of mean score	Mean self-efficacy gained score with 95%CI	% of self-efficacy gained score with 95%CI
Experimental	Pretest	60	23.74	39.57%	23.41 (22.21-24.60)	37.01% (28.55-40.88)
	Posttest-I	60	32.67	54.45%		
	Posttest-II	60	47.15	78.58%		
Control	Pretest	60	23.36	38.93%	0.66 (-0.39-0.92)	1.10% (-0.65%-1.05%)
	Posttest-I	60	23.59	39.32%		
	Posttest-II	60	24.02	40.03%		

The study show the effectiveness of oral debriefing with simulated CPR learning and generalization of self-efficacy gain score. Differences and generalization of self-efficacy gain score between pretest and posttest score was calculated using mean difference with 95% CI and proportion with 95% CL. The study indicated that nursing students in the experiment group gained 37.01% self-efficacy score whereas control group gained only 1.10%. This difference in the gain score between the two groups shows the effectiveness of the intervention administered among the nursing students in the experimental group. The effectiveness of oral debriefing with simulated CPR learning on self-efficacy. The experimental group gained 37.01% in self-efficacy, compared to 1.10% in the control group, highlighting the intervention's significant impact on the experimental group.

Table 4.12: Co-relation between knowledge gain score, skill gain score and self-efficacy gain score on Oral debriefing with simulated CPR learning among Experimental group of nursing students

N=120

	Correlation between	Mean gain score Mean ±SD	Karl Pearson Correlation coefficients	Interpretation
Experimental group	Knowledge gain score Vs Skill gain score	8.66±5.32 16.66±6.94	r= 0.46 P=0.001**(S)	Moderate correlation
	Knowledge gain score Vs Self-efficacy gain score	8.66±5.32 23.41±6.59	r= 0.37P=0.01* (S)	Fair correlation
	Skill gain score Vs Self-efficacy gain score	16.66±6.94 23.41±6.59	r= 0.42P=0.001*** (S)	Moderate correlation

S= significant NS= not significant

Mean gain score= posttest score- pretest score

The correlation between knowledge gain score, skill gain score, and self-efficacy gain score on oral debriefing with simulated CPR learning among nursing students in the experimental group showed positive relationships. A moderate positive correlation was observed between knowledge gain and skill gain ($r = 0.46$, $p<0.01$), indicating that as knowledge increases, skill levels also improve. Similarly, a fair positive correlation was found between knowledge gain and self-efficacy gain ($r=0.37$, $p<0.05$), suggesting that increased knowledge enhances self-efficacy. Accordingly, a moderate positive correlation was noted between skill gain and self-efficacy gain ($r=0.42$, $p<0.001$), implying that improved skills contribute to greater self-efficacy. These findings emphasize the interconnected growth of knowledge.

Interpretation for r- value

Karl Pearson correlation coefficient is denoted by "r"

"r" always lies between -1 to +1

0.0 – 0.2 poor correlation

0.2 - 0.4 fair correlation

0.4 - 0.6 moderate correlation

0.6 – 0.8 substantial correlation

0.8 - 1.0 strong correlation

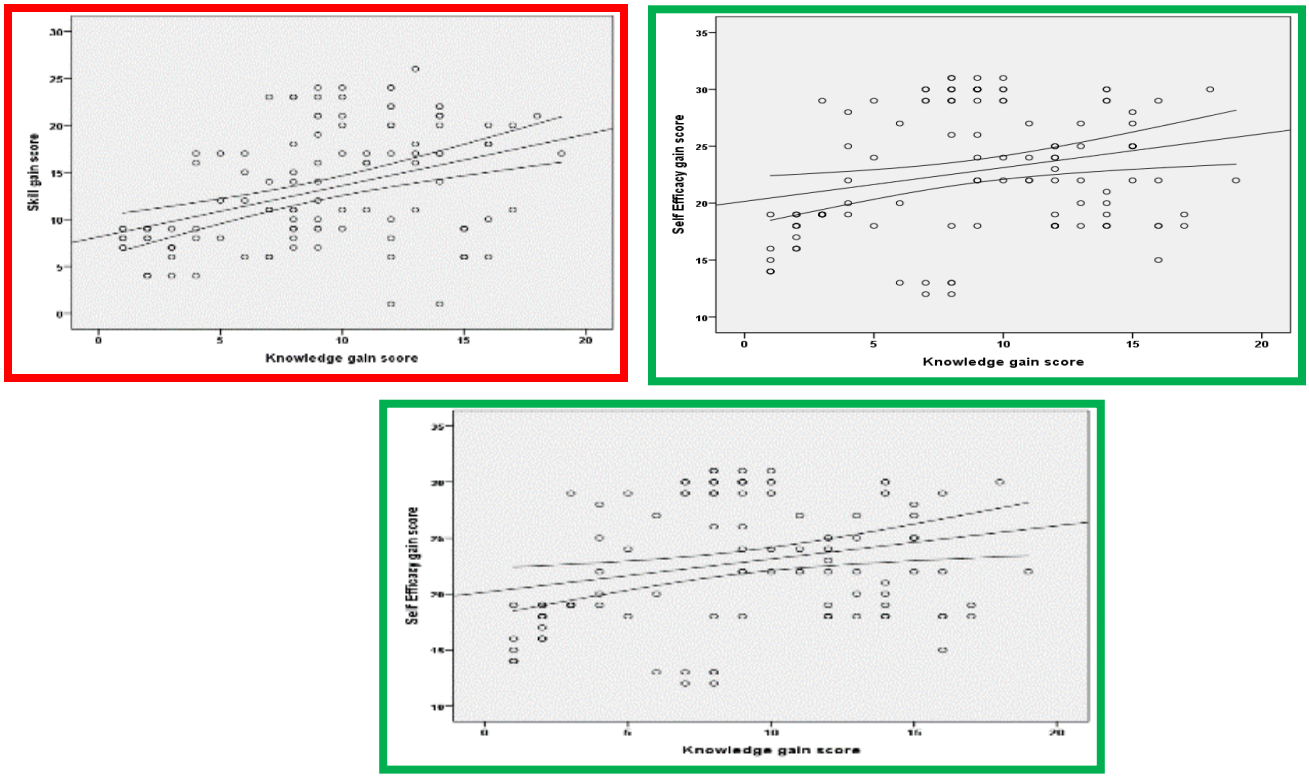


Fig.4.4: Scatter diagram with regression estimate shows the moderate correlation between Knowledge gain score, Skill gain score and Self-efficacy among Nursing students

Table 4.13: ASSOCIATION BETWEEN POSTTEST LEVEL OF KNOWLEDGE SCORE AND NURSING STUDENTS DEMOGRAPHIC VARIABLES (Experimental group)

N=120

Demographic variables		Post-test Level of knowledge score						n	Chi square test
		Inadequate		Moderate		Adequate			
		n	%	n	%	n	%		
Age (in years)	18 years	0	0.00%	9	60.00%	6	40.00%	15	**χ^2=9.67 p=0.05*(S)**
	19 years	0	0.00%	20	44.44%	25	55.56%	45	
	20 years	0	0.00%	13	29.55%	31	70.45%	44	
	21 years	0	0.00%	2	12.50%	14	87.50%	16	
Sex	Male	0	0.00%	29	46.77%	33	53.23%	62	**χ^2=5.65 p=0.05*(S)**
	Female	0	0.00%	15	25.86%	43	74.14%	58	
Father's education	Educated	0	0.00%	40	39.60%	61	60.40%	101	χ^2=2.37 p=0.12(NS)
	Illiterate	0	0.00%	4	21.05%	15	78.95%	19	
Mother's education	Educated	0	0.00%	38	36.54%	66	63.46%	104	χ^2=0.01p=0.94(NS)
	Illiterate	0	0.00%	6	37.50%	10	62.50%	16	
Type of residential area	Urban	0	0.00%	18	36.73%	31	63.27%	49	**χ^2=8.14 p=0.05*(S)**
	Rural	0	0.00%	23	47.92%	25	52.08%	48	
	Suburban	0	0.00%	3	13.04%	20	86.96%	23	
Type of family	Joint family	0	0.00%	14	42.42%	19	57.58%	33	χ^2=0.65 p=0.42(NS)
	Nuclear family	0	0.00%	30	34.48%	57	55.52%	87	

The table 4.13 shows the association of posttest level of knowledge among nursing students with selected demographic variables in the experimental group using chi-square test.

The table 4.13 depicts that the demographic variables age **(χ^2=9.67, p = 0.05),** sex **(χ^2=5.65 p = 0.05)** and **(χ^2=8.14, p = 0.05)** had statistically significant association with posttest level of knowledge among nursing students at p<0.05 level. The table clearly infers that nursing students aged 21 years, female gender and residing in urban area gained more knowledge after the intervention in the post test.

Table 4.14: ASSOCIATION BETWEEN POSTTEST LEVEL OF SKILL SCORE AND NURSING STUDENTS DEMOGRAPHIC VARIABLES(Experimental group)

N=120

Demographic variables		Post-test Level of skill score						n	Chi square test
		Poor		Moderate		Good			
		n	%	n	%	n	%		
Age (in years)	18 years	0	0.00%	5	33.33%	10	66.67%	15	**χ^2=2.20 p=0.53*(S)**
	19 years	0	0.00%	13	28.89%	32	71.11%	45	
	20 years	0	0.00%	13	29.55%	31	70.45%	44	
	21 years	0	0.00%	2	12.50%	14	87.50%	16	
Sex	Male	0	0.00%	20	32.26%	42	67.74%	62	χ^2=1.46 p=0.22(NS)
	Female	0	0.00%	13	22.41%	45	77.59%	58	
Father's education	Educated	0	0.00%	29	28.71%	72	71.29%	101	χ^2=0.47 p=0.49(NS)
	Illiterate	0	0.00%	4	21.05%	15	78.95%	19	
Mother's education	Educated	0	0.00%	29	27.88%	75	72.12%	104	χ^2=0.06 p=0.81(NS)
	Illiterate	0	0.00%	4	25.00%	12	75.00%	16	
Type of residential area	Urban	0	0.00%	8	16.32%	41	83.68%	49	**χ^2=6.60 p=0.05*(S)**
	Rural	0	0.00%	19	39.58%	29	60.12%	48	
	Suburban	0	0.00%	6	26.09%	17	73.91%	23	
Type of family	Joint family	0	0.00%	14	42.42%	19	57.58%	33	**χ^2=5.08 p=0.05*(S)**
	Nuclear family	0	0.00%	19	21.84%	68	78.16%	87	

The table 4.14 shows the association of posttest level of skill among nursing students with selected demographic variables in the experimental group using chi-square test.

The table 4.14 depicts that the demographic variables type of residential area **(χ^2=6.60, p = 0.05)** and **(χ^2=5.08, p = 0.05)** had statistically significant association with posttest level of skill among nursing students at $p<0.05$ level.

The table clearly infers that nursing students residing in urban area and who were from nuclear family gained more skill after the intervention in the post test.

Table 4.15: ASSOCIATION BETWEEN POSTTEST LEVEL OF SELF-EFFICACY SCORE AND NURSING STUDENTS DEMOGRAPHIC VARIABLES (Experimental group)

N=120

Demographic variables		Post-test Level of self-efficacy score						n	Chi square test
		Inadequate		Moderate		Adequate			
		n	%	n	%	n	%		
Age (in years)	18 years	0	0.00%	10	66.67%	5	33.33%	15	**χ^2=15.50 p=0.001***(S)**
	19 years	0	0.00%	10	22.22%	35	77.78%	45	
	20 years	0	0.00%	9	20.45%	35	79.55%	44	
	21 years	0	0.00%	2	12.50%	14	87.50%	16	
Sex	Male	0	0.00%	20	32.26%	42	67.74%	62	χ^2=2.76 p=0.10(NS)
	Female	0	0.00%	11	18.97%	47	81.03%	58	
Father's education	Educated	0	0.00%	25	24.75%	76	75.25%	101	χ^2=0.38 p=0.53(NS)
	Illiterate	0	0.00%	6	31.58%	13	68.42%	19	
Mother's education	Educated	0	0.00%	25	22.12%	79	77.88%	104	χ^2=1.31 p=0.25(NS)
	Illiterate	0	0.00%	6	50.00%	10	50.00%	16	
Type of residential area	Urban	0	0.00%	11	16.33%	38	83.67%	49	χ^2=4.56 p=0.10(NS)
	Rural	0	0.00%	17	41.67%	31	58.33%	48	
	Suburban	0	0.00%	3	13.04%	20	86.96%	23	
Type of family	Joint family	0	0.00%	13	39.39%	20	60.71%	33	**χ^2=4.33 p=0.05*(S)**
	Nuclear family	0	0.00%	18	20.69%	69	79.31%	87	
Religion	Hindu	0	0.00%	20	27.40%	53	72.60%	73	χ^2=1.08 p=0.58(NS)
	Muslim	0	0.00%	4	17.39%	19	82.61%	23	
	Christian	0	0.00%	7	29.17%	17	70.83%	24	
Previous knowledge about CPR	Yes	0	0.00%	4	11.43%	31	88.57%	35	**χ^2=5.35 p=0.05*(S)**
	No	0	0.00%	27	31.76%	58	68.24%	85	

The table 4.15 shows the association of posttest level of self-efficacy among nursing students with selected demographic variables in the experimental group using chi-square test.

The table shows the association between post – test self-efficacy levels nursing students and selected demographic variables in the experimental group was analyzed using the chi- square test. The results indicated a statistically significant association between age self-efficacy (χ^2=15.50, p=0.001) at p<0.001. Additionally, type of family (χ^2=4.33. p =0.05) and previous knowledge about CPR , (p = 0.05) showed significant associations at p<0.05. These findings suggest that nursing students aged 21 years, from nuclear families, and with prior CPR knowledge demonstrated greater self-efficacy improvements after the intervention.

CHAPTER-V

DISCUSSION

The chapter deals with the discussion of the present study results with the similar studies done accordingly to the objectives.

Objective 5.1: To assess the baseline knowledge, skill, and self-efficacy on oral debriefing with simulated CPR learning in control group and experimental group.

5.1 Objective 1:

The baseline assessment showed no significant differences in knowledge, skill, and self - efficacy between the experimental and control groups (p>0.05), confirming comparability before the intervention. In terms of knowledge, 65% of the experimental group and 57.5% of the control group had inadequate of the control group demonstrating poor skills (p=0.85, NS). Likewise, self-efficacy was comparable, with 83.33% of the experimental group and 84.17% of the control group reporting inadequate self-efficacy (p=0.86, NS). The mean score further supported this alignment, with knowledge scores of 68% (SD=8.7) vs. 69%(SD+7.5), skill scores of 71.5% vs. 70.9%, self-efficacy scores of 58.7(SD=12.3)vs. 59.1(SD=11.9) in the experimental and control groups, (SD=11.9) in the experimental and control groups, respectively. Similarly, a study by LEE et al.(2023) on CPR training with oral debriefing reported comparable baseline knowledge (62% vs. 63%), skills (75.3% vs.74.8%), and self-efficacy (6.4 vs. 6.6. SD= 1.8, 1.9), reinforcing the findings of this study. [18]

5.2 Objective 2:

2. To assess the effectiveness of oral debriefing with simulated CPR learning on knowledge, skill, and self-efficacy in the experimental group.

The baseline assessment showed no significant difference in knowledge (p=0,47), skill (p=0.85), and self – efficacy (p=0.86) between the experimental and control groups, confirming comparability before intervention. Post – intervention, Zhang et al. (2023) reported significant improvements with knowledge increasing from 62.4% to 82.3%, skill from 69.1% to 88,7%, and self-efficacy from 5.8 to 7.6 (p< 0.001).[9] Similarly, Patel et al.(2023) found knowledge improved from 64.7% to 84.5%, skill from 71.3% to 89.2%, skill from 69.1% to 88.7% and self-efficacy from 5.8 to 7.6 (p<0.001). similarly, Patel et al. (2023) found knowledge improved from 64.7% to 84.5%, skill from 71,3% to 89.2%, skill from

69% to 88.7% and self – efficacy from 6.1% to 8.0 ($p< 0.001$). These findings confirm the effectiveness of oral debriefing in enhancing CPR training outcomes. [19]

3**. To assess the correlation between knowledge, skill, and self-efficacy on oral debriefing with simulated CPR learning among the experimental group.**

The study found poor correlations between knowledge, skill, and self-efficacy gain scores in the experimental group ($r=0.16$, $p=0.29$, $r=0.18$, $p=0.22$), indicating weak associations. In contrast, Robert et al. (2023) reported strong positive correlations between knowledge and skill ($r=0.58$, $p<0.001$), skill and self – efficacy ($r=0.66$, $p<0.001$), and knowledge and self-efficacy ($r=0.51$, $P<0.001$), suggesting that improved knowledge and skill enhance self-efficacy in CPR training. Li et al. (2023) further high lightened the influence of age ($p=0.03$) and prior CPR experience ($p=0.01$) on learning outcomes, with older students and those with prior training showing greater improvements. These findings emphasize the role of prior experience and demographic factors in CPR skill development . [20]

5.4 Objective 4:

To find an association between the posttest level of effectiveness of oral debriefing with simulated CPR learning among nursing students and their selected demographic variable in the experimental group.

The study found no significant association between post -test knowledge, skill and self-efficacy scores and demographic variables in the experimental group ($p<0.05$). However, trends indicated that nursing students aged > 19 years and from semi – urban areas had higher knowledge levels, while those ages 21 years, from nuclear families, and residing in urban areas showed better skill scores. Fernandez et al. (2023) reported a significant association between gender and self- efficacy ($p = 0.02$), with female students showing greater improvements, and final- year students demonstrating better knowledge, skill outcomes ($p=0.04$). These findings suggested that demographic factors like age, experience, and academic progression may influence the effectiveness of oral debriefing in CPR training.

5.5 CHAPTER SUMMARY:

The chapter emphasizes the positive effects of oral debriefing on CPR-related competencies, though the study's findings regarding correlations between knowledge, skill, and self-efficacy and the influence of demographic variables require further exploration. The results align with previous studies, confirming the effectiveness of oral debriefing in enhancing CPR learning outcomes.

CHAPTER-VI

SUMMARY, CONCLUSION, RECOMMENDATIONS & LIMITATIONS

6.1 SUMMARY:

The study findings indicate the following Oral debriefing with CPR simulated learning among participants

The demographic variables such as age, sex, parental education, residential area, type of family, religion, and prior knowledge about CPR were comparable between the experimental and control groups, with no statistically significant differences observed ($p > 0.05$).

- Inadequate knowledge was reported in 65% of the experimental group and 57.50% of the control group.
- Moderate knowledge was observed in 30.83% of the experimental group and 38.33% of the control group.
- Adequate knowledge was found in only 4.17% of students in both groups.
- The chi-square analysis revealed no significant difference in baseline knowledge levels between the groups ($\chi^2 = 1.53$, $p = 0.47$).
- Poor skill levels were noted in 84.17% of the experimental group and 85% of the control group.
- Moderate skill was demonstrated by 15.83% of the experimental group and 15% of the control group.
- None of the students in either group showed good skill.
- The chi-square value ($\chi^2 = 0.03$, $p = 0.85$) confirmed no significant difference in baseline skill levels between the groups.
- Inadequate self-efficacy was reported by 83.33% of the experimental group and 84.17% of the control group.
- Moderate self-efficacy was observed in 16.67% of the experimental group and 15.83% of the control group.
- No students in either group had adequate self-efficacy.
- The chi-square value ($\chi^2 = 0.03$, $p = 0.86$) indicated no significant difference in baseline self-efficacy levels

Pretest and posttest skill Assessment:

Pretest Skills: Poor skills were noted in 84.17% of the experimental group and 85% of the control group. Mean pretest skill scores were 17.17 (experimental) and 16.93 (control), with no significant difference ($p > 0.05$). **Posttest Skill Improvement (Experimental Group)**:

Posttest-I mean score increased to 26.07 and Posttest-II mean score further improved to 33.83.The mean difference from pretest to posttest-II was 18.66, ANOVA results showed a significant improvement ($F = 188.70$, $p < 0.001$).Bonferroni t-test: Pretest to Posttest-I: MD = 10.90, $p < 0.001$. Posttest-I to Posttest-II: MD = 7.76, $p < 0.001$**Control Group Skill Improvement** Minimal improvement with no significant changes ($F = 2.79$, $p = 0.08$).

Correlation Analysis

Experimental Group Self-efficacy gain was 37.01%, indicating significant improvement due to the intervention.

Control Group: Self-efficacy gain was only 1.10%, with no significant changes observed.

Conclusion

6.2 STRENGTHS OF THE STUDY:

- A well- coordinated effort by the researcher, healthcare workers, faculty members, and peer participants ensured consistent follow-up and study completion.
- The study was ethically approved and registered with the Institutional Ethical Committee, ensuring credibility and adherence to research standards.
- Experimental and control groups were selected randomly, minimizing contamination of interventional information.

6.3 LIMITATIONS OF THE STUDY:

The study has the following limitations:

- Includes only second-year students from selected private nursing colleges in Bangalore.
- Conducted in six nursing colleges, limiting sample diversity.
- Findings may not be generalizable beyond Bangalore.
- Excludes Non- English – speaking students.
- Examines only oral debriefing's impact on CPR, with a limited size of 240 students

6.4 RECOMMENDATIONS OF THE STUDY:

- Nursing colleges should include structed oral debriefing in CPR training, conducted immediately post-simulation for better retention.
- Faculty should be equipped with effective debriefing skills, focusing on feedback, concept clarity, and self-reflection.
- Combining oral debriefing with visual aids or peer discussions can enhance learning.
- Long – term studies on debriefing's impact on clinical performance are needed.
- Implementing these strategies will improve student competence and patient care outcomes.

6.5 IMPLICATIONS OF THE STUDY:

- Integrating structured oral debriefing in nursing education improves CPR skills, knowledge retention, and self-efficacy,
- Training educators in effective debriefing enhances student learning and clinical preparedness.
- Improved CPR competence leads to more confident emergency responses and enhanced patient care.

6.6 Policy Implications:

1. Standardization – Mandate oral debriefing in CPR training for consistency.
2. Resource Allocation – Invest in faculty training and debriefing tools.

6.7 Research Implications:

1. Further studies : Explore and compare oral, written and video-assisted debriefing to identify the most effective methods for nursing education.
2. Long -Term Impact: Study oral debriefing long – term effects on clinical competency and its influence on professional practice.

6.8 CONCLUSION:

The study findings confirm that oral debriefing combined with simulated CPR learning significantly enhances nursing students knowledge, skill and self-efficacy. This intervention allows students to refine their practical abilities, improve comprehension of CPR techniques, and build confidence in real- life applications. Integrating oral debriefing into nursing curriculum can strengthen training effectiveness and better prepare students for emergency situations. Additionally, incorporating preventive a health promotion activity alongside CPR training can further improve patient outcomes. Further research should explore long-term retention and the broader impact of oral debriefing on clinical competence.

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ANNEXURE-I

RESEARCH METHODOLOGY EXAM PASS CERTIFICATE

SRI BALAJI VIDYAPEETH
Examinations

OFFICE OF THE CONTROLLER OF EXAMINATIONS
Dr. **S. SRIRANGARAJ**
Controller of Examinations

Date: 21-06-2023

No. SBV/COE/Ph.D/A5

UNIVERSITY MEMORANDUM

Sub : Sri Balaji Vidyapeeth – Ph.D Degree in Part – I Course Work Assessment – Results Notified.

* * * * *

Mr/Mrs/Dr. **EZHILARASI R,** UIN. **1905002018** Research Scholar in Nursing (Part Time - External) is declared to have passed the Ph.D Part-I – Course Work Assessment and he/she is permitted to continue the research under the guidance of Dr. **HELEN SHAJI** and submit the thesis for the award of Ph.D Degree as per the regulations of SBV.

Sl. No.	Subjects	Result Status
1	PAPER - I RESEARCH METHODOLOGY AND BIOSTATISTICS	**PASS**
2	PAPER - II ON CHOSEN FIELD OF RESEARCH	**PASS**

SRI BALAJI VIDYAPEETH CONTROLLER OF EXAMINATIONS PONDICHERRY

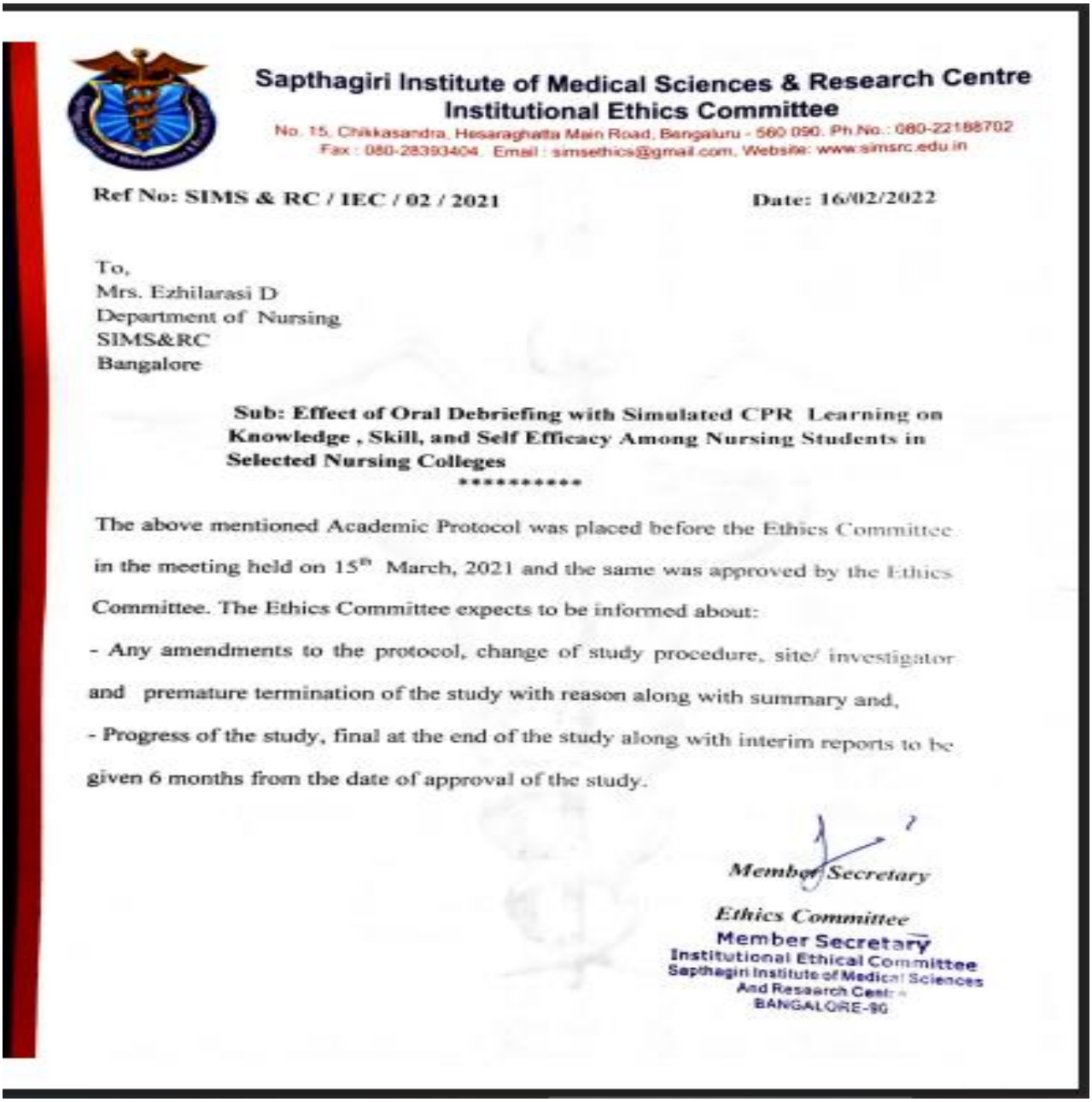
S. Sriranjaraj
CONTROLLER OF EXAMINATIONS

To : Mr/Mrs/Dr. **EZHILARASI R**

CC : Dr. **HELEN SHAJI**, Principal, SSSCON.

ANNEXURE - II

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE:



Sapthagiri Institute of Medical Sciences & Research Centre
Institutional Ethics Committee
No. 15, Chikkasandra, Hesaraghatta Main Road, Bangaluru - 560 090. Ph.No.: 080-22188702
Fax : 080-28393404. Email : simsethics@gmail.com, Website: www.simsrc.edu.in

Ref No: SIMS & RC / IEC / 02 / 2021 **Date: 16/02/2022**

To,
Mrs. Ezhilarasi D
Department of Nursing
SIMS&RC
Bangalore

Sub: Effect of Oral Debriefing with Simulated CPR Learning on Knowledge , Skill, and Self Efficacy Among Nursing Students in Selected Nursing Colleges

****

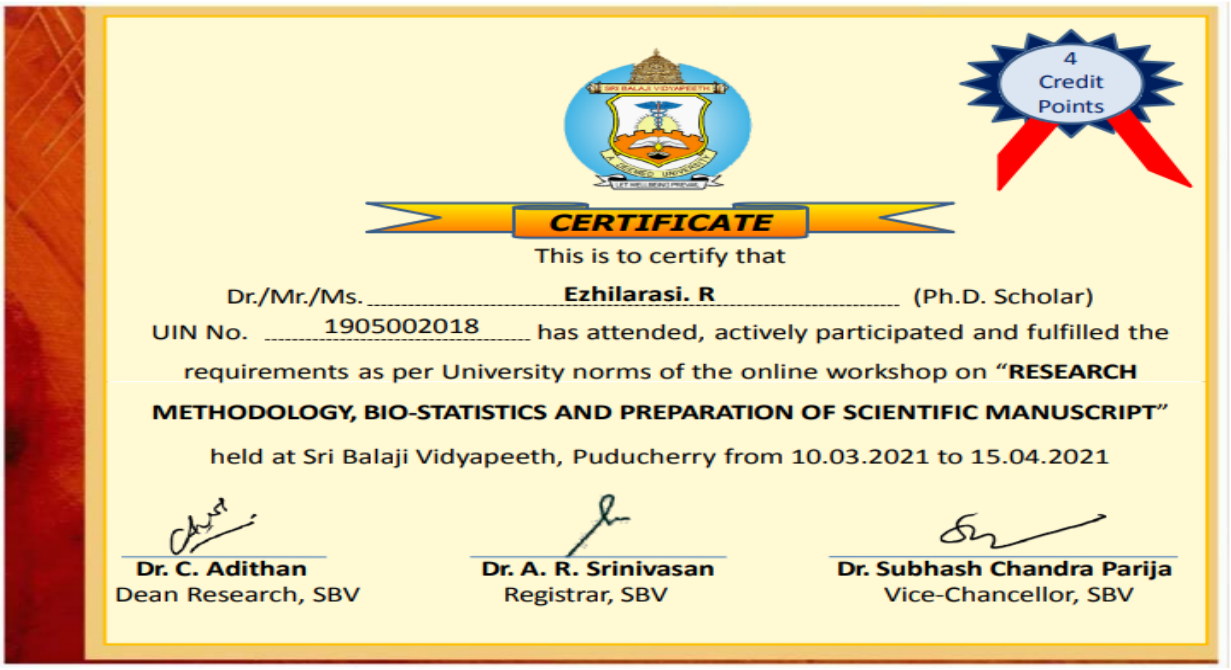
The above mentioned Academic Protocol was placed before the Ethics Committee in the meeting held on 15th March, 2021 and the same was approved by the Ethics Committee. The Ethics Committee expects to be informed about:

- Any amendments to the protocol, change of study procedure, site/ investigator and premature termination of the study with reason along with summary and,
- Progress of the study, final at the end of the study along with interim reports to be given 6 months from the date of approval of the study.

Member Secretary
Ethics Committee
Member Secretary
Institutional Ethical Committee
Sapthagiri Institute of Medical Sciences
And Research Centre
BANGALORE-90

ANNEXURE-III

RESEARCH METHODOLOGY , BIOSTATISTICS COURSE CERTIFICATES CONDUCTED BY SBV UNIVERSITY



4 Credit Points

CERTIFICATE

This is to certify that

Dr./Mr./Ms. **Ezhilarasi. R** (Ph.D. Scholar)

UIN No. 1905002018 has attended, actively participated and fulfilled the requirements as per University norms of the online workshop on "**RESEARCH METHODOLOGY, BIO-STATISTICS AND PREPARATION OF SCIENTIFIC MANUSCRIPT**" held at Sri Balaji Vidyapeeth, Puducherry from 10.03.2021 to 15.04.2021

Dr. C. Adithan
Dean Research, SBV

Dr. A. R. Srinivasan
Registrar, SBV

Dr. Subhash Chandra Parija
Vice-Chancellor, SBV

SRI BALAJI VIDYAPEETH

ACCREDITED BY NAAC WITH A++ GRADE
Listed u/s 12 B of the UGC Act, 1956.

DEEMED TO BE UNIVERSITY
Declared u/s 3 of the UGC Act, 1956.

SBV Credit Points 15

MGMARI

MAHATMA GANDHI MEDICAL ADVANCED RESEARCH INSTITUTE (MGMARI)
Puducherry – 607 402, India

Certificate of Participation

This is to certify that Dr/Mr/Ms/Mrs..... **Ezhilarasi R** *..... has participated/given oral presentation/presented poster in the International Symposium on,* **"CURRENT TRENDS AND FUTURE PERSPECTIVES OF NUCLEIC ACIDS RESEARCH IN HEALTH & DISEASES"** *organized by Mahatma Gandhi Medical Advanced Research Institute (MGMARI), in collaboration with Frontier Institute for Biomolecular Engineering Research (FIBER), Japan and support from JSPS Core to Core Project, JSPS, JAPAN on November 30 and December 1, 2023 at Sri Balaji Vidyapeeth (SBV), Puducherry.*

Dr Sudipta Bhowmik
Organizing Secretary
MGMARI, SBV

Dr. S. R. Rao
Vice-president
(Research Innovation & Development), SBV

Prof. Nihar Ranjan Biswas
Vice - Chancellor
SBV

ANNEXURE-IV

SCIENTIFIC PAPER (ORAL) PRESENTATION CERTIFICATES

SRM INSTITUTE OF SCIENCE & TECHNOLOGY — CURI HOSPITAL

CERTIFICATE

OF PRESENTATION

SFNP NURSING PRACTICES — BioLEAGUES

2ND INTERNATIONAL CONFERENCE ON NURSING SCIENCE AND HEALTHCARE

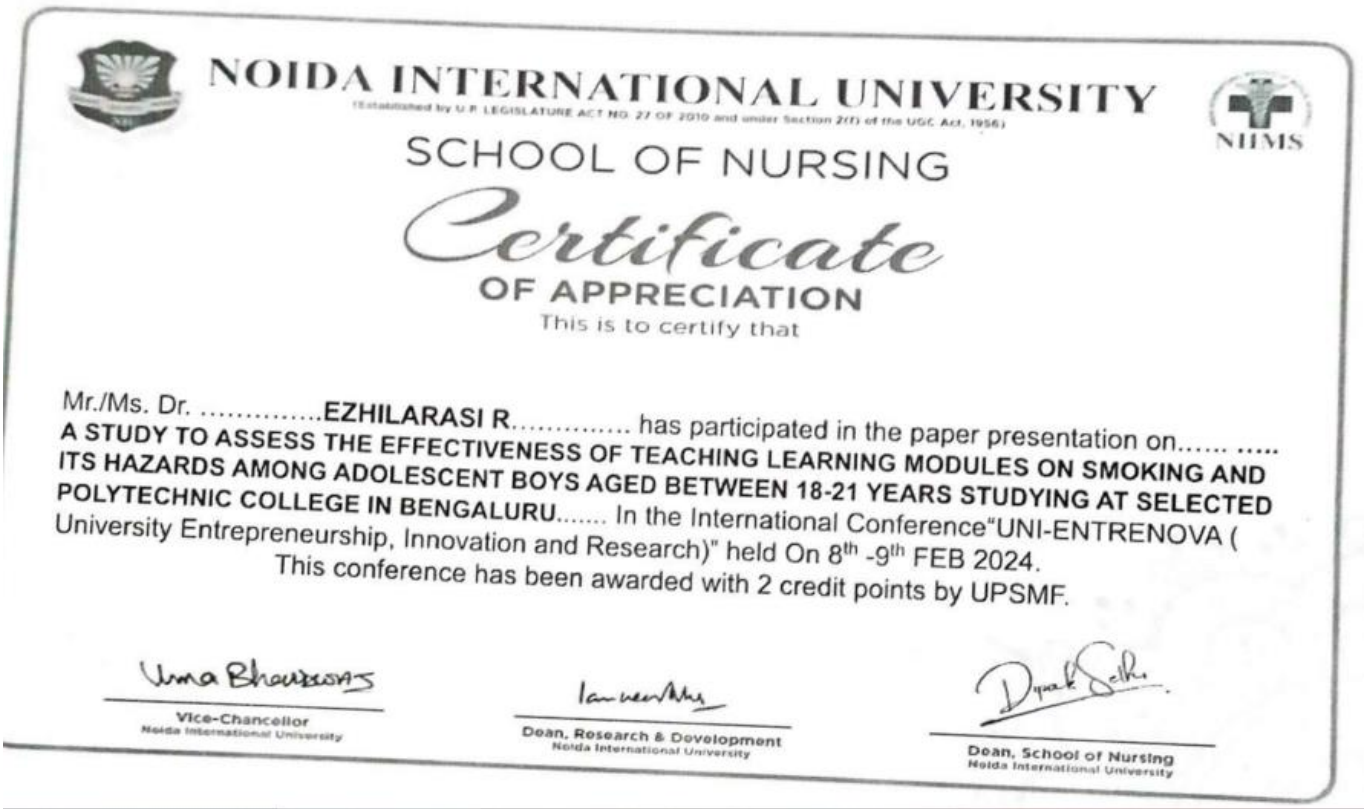
21st & 22nd May 2021 | Virtual Conference

This is to certify that **EZHILARASI. R** of SBV UNIVERSITY,PONDICHERRY presented his/her worthy Oral presentation titled *A study to assess the effectiveness of structured teaching programme on Knowledge and practice regarding self administration of insulin injection among diabetic clients in a selected primary Health Centre Bangalore.* in the "2nd International Conference on Nursing Science and Healthcare (ICNSH-2021)" organized by Society For Nursing Practice (SFNP) & BioLeagues Worldwide and Co-organized by SRM College of Nursing on 21st & 22nd May 2021.

Dr. C. Kanniammal, M.Sc(N), Ph.D.,
Dean - SRM College of Nursing
Tamil Nadu, India

Mr. Rudra Bhanu Satpathy
CEO & Founder
BioLeagues Worldwide

SCIENTIFIC PAPER (ORAL) PRESENTATION II CERTIFICATE



NOIDA INTERNATIONAL UNIVERSITY

(Established by U.P. LEGISLATURE ACT NO. 27 OF 2010 and under Section 2(f) of the UGC Act, 1956)

NIIMS

SCHOOL OF NURSING

Certificate

OF APPRECIATION

This is to certify that

Mr./Ms. Dr. .....**EZHILARASI R**..... has participated in the paper presentation on..... ..... **A STUDY TO ASSESS THE EFFECTIVENESS OF TEACHING LEARNING MODULES ON SMOKING AND ITS HAZARDS AMONG ADOLESCENT BOYS AGED BETWEEN 18-21 YEARS STUDYING AT SELECTED POLYTECHNIC COLLEGE IN BENGALURU**..... In the International Conference"UNI-ENTRENOVA (University Entrepreneurship, Innovation and Research)" held On 8th -9th FEB 2024.

This conference has been awarded with 2 credit points by UPSMF.

Vice-Chancellor
Noida International University

Dean, Research & Development
Noida International University

Dean, School of Nursing
Noida International University

ANNEXURE-VI

ENLS, ACLS & BLS INSTRUCTOR COURSE CERTIFICATE

JeevaRaksha

(Rajiv Gandhi University of Health Sciences and Swami Vivekananda Youth Movement's Initiative)

www.jeevaraksha.org

Certificate

EZHILARASI R (RR TMN 2014 4328 KAR)

has successfully completed

JeevaRaksha - Emergency Nursing and Life Support (ENLS)

course(JR/KA/N/014) held at Sapthagiri Institute of Medical Sciences and Research Centre from 29th March to 1st April 2022 and is certified as **'ENLS - INSTRUCTOR'**. Certificate is valid for 5 years from this day.

Dr Ram Krishnan Nair
CEO
JeevaRaksha Trust

Dr B J Mahendra
Director, Curriculum Development
Rajiv Gandhi University of Health Sciences

Dr (Flt Lt) M A Balasubramanya
Managing Trustee
JeevaRaksha Trust

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ADVANCED CARDIOVASCULAR LIFE SUPPORT

ACLS Provider

American Heart Association.

MRS.EZHILARASI R

has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association Advanced Cardiovascular Life Support (ACLS) Program.

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19 Nov 2022	Nov 2024	225621490939

To view or verify authenticity, students and employers should scan this QR code with their mobile device or go to https://ecards.heart.org/international.

ADVANCED CARDIOVASCULAR LIFE SUPPORT

Training Center Name	Indian Institute of Emergency Medical Services
Training Center ID	ZZ20389
TC City, Country	Kottayam, India
Training Site Name	Indian Institute of Emergency Medical Services
Instructor Name	Rambabu Bang
Instructor ID	12140291351

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1. Cut along dotted lines
2. Fold both halves together
3. Use adhesive to combine halves

American Heart Association.
2020
CPR & ECC
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Advanced Cardiovascular Life Support Precourse Self-Assessment

EZHILARASI R

has passed the precourse self-assessment.

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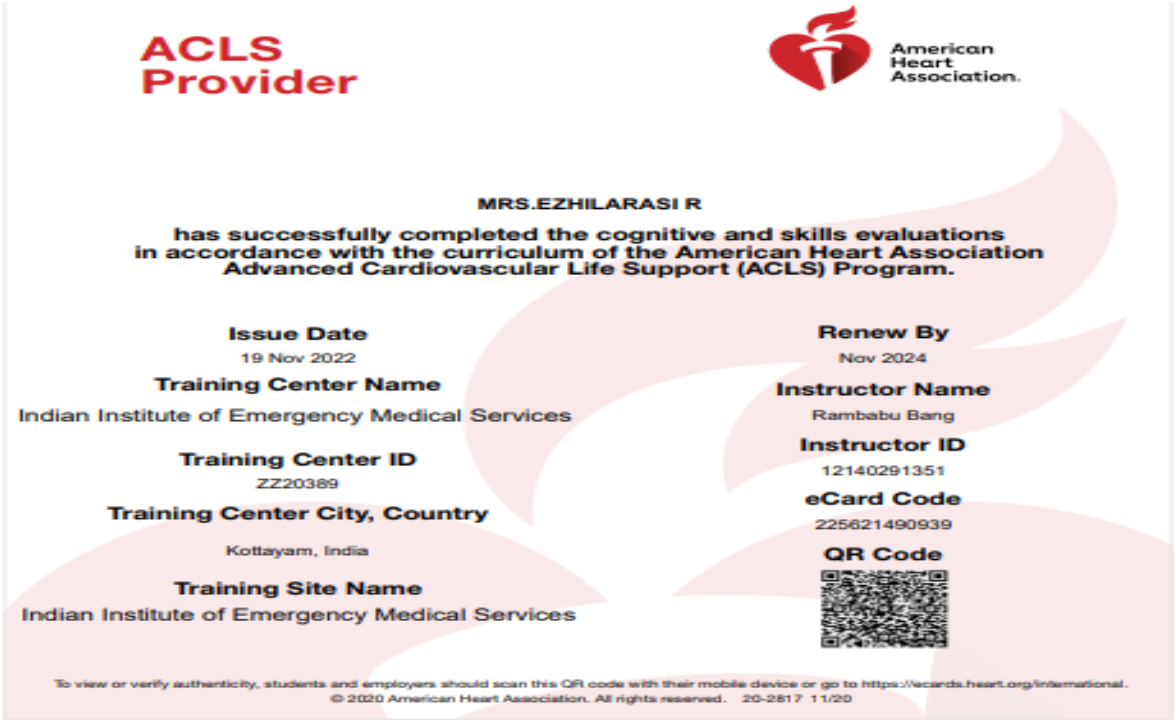

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MRS.EZHILARASI R

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A SYSTEMATIC REVIEW OF ORAL DEBRIEFING WITH SIMULATED LEARNINGS 'IMPACT ON NURSES' SELF – EFFICACY AND CPR SKILLS

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Abstract:
Cardiopulmonary resuscitation, or CPR, is an essential nursing skill for nurses, as it can significantly impact patient outcomes in emergency situations. Simulated learning with debriefing is an effective method to enhance CPR training.[1] This systematic review aims to evaluate the existing literature to determine the effect of oral debriefing combined with simulated learning on CPR skill, and self – efficacy among nurses[2]. A comprehensive search of electronic databases was conducted, and relevant studies published up to September 2024 were included. The review synthesized and analyzed the findings of eligible studies to provide a comprehensive overview of the impact of this training methods on nurses' CPR – related outcome. This review was to identify, appraise and synthesize the best available evidence for the effectiveness of debriefing as it relates to simulation – based learning for health professionals.
Keywords: Oral debriefing, simulated learning, CPR skills, self - efficacy. Systematic review, nursing proficiency.

Introduction:

The ability to perform cardiopulmonary resuscitation (CPR) effectively is a critical skill for nurses, directly impacting patient outcomes in emergency situations. While traditional training methods are essential, incorporating simulated

learning and oral debriefing has shown promise in enhancing these skills.[2,3] This systematic review aims to evaluate the impact of oral debriefing combined with simulated learning on nurses' self – efficacy and CPR skills. By synthesizing existing research, we seek to determine the effectiveness of these educational interventions in improving both the confidence and technical proficiency of nursing professionals.[5] Cardiac arrest is a life – threatening emergency that requires immediate intervention. Nurses play a crucial role in providing high quality cardiopulmonary resuscitation (CPR) to improve patient survival rates. Simulation – based training with debriefing has gained popularity as an effective educational strategy to enhance skill, and self – efficacy among nursing professionals This systematic review aims to determine the availability evidence on the effectiveness of oral debriefing combined with simulated learning in improving CPR – related outcomes among nurses. When someone is not breathing regularly or has experienced cardiac arrest, cardiopulmonary resuscitation (CPR)is applied. This combo includes mouth-to - mouth breathing and chest compressions. Until specialized therapy is available, CPR keeps the blood flowing and provide oxygen to the body. When someone performs CPR, the blood normally still contains enough oxygen to support the brain and other organs for a short while, but the oxygen is not flowing. It can literally save lives to know basic emergency first aid and CPR. This evaluation combining oral debriefing with simulated learning impacts nurse's self-efficacy and CPR skills, enabling them to execute the treatment more quickly in an emergency and perhaps save a patient's life.[16]

METHODOLOGY:

Search Strategy: A systematic search was conducted in electronic databases, including PubMed, CINAHL, Scopus, and Embassy, Cochrane library, Ovid MEDLINE, PsyUNFO, Education Resources information Center, Quest Dissertations and Theses Global to identify relevant studies published up to 2018 to 2024. The search terms included "CPR," "simulation," "debriefing," "nurses," "knowledge," "skill," and "self-efficacy."[5,6,7,8] Subgroup analysis were conducted to explore sources of heterogenicity. Overall certainty of evidence was appraised using the grading of Recommendations Assessment Development and evaluation approach. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed.

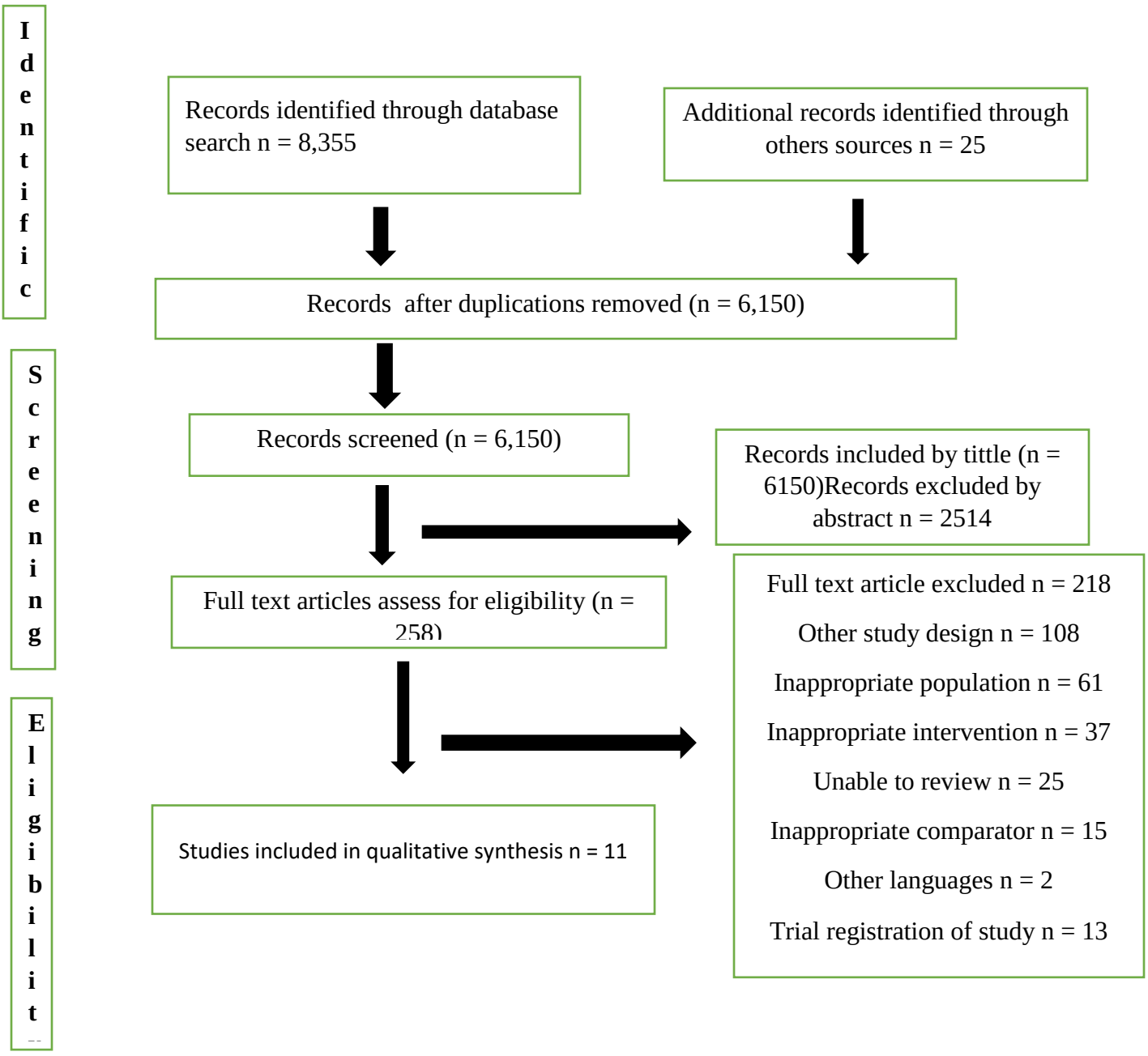
Study Selection: Studies were included if they met the following criteria: (1) conducted among nurses, (2) used simulated learning with oral debriefing as an educational intervention[7], (3) assessed CPR skill, and self-efficacy as outcomes, and (4) provided sufficient data for analysis. Excluded materials also included manuscripts that were submitted more than once, works written in languages other than Chinese or English, works whose entire text were unavailable,[8] flawed data gathering techniques, incomplete or missing data, and mistakes in statistical analysis.

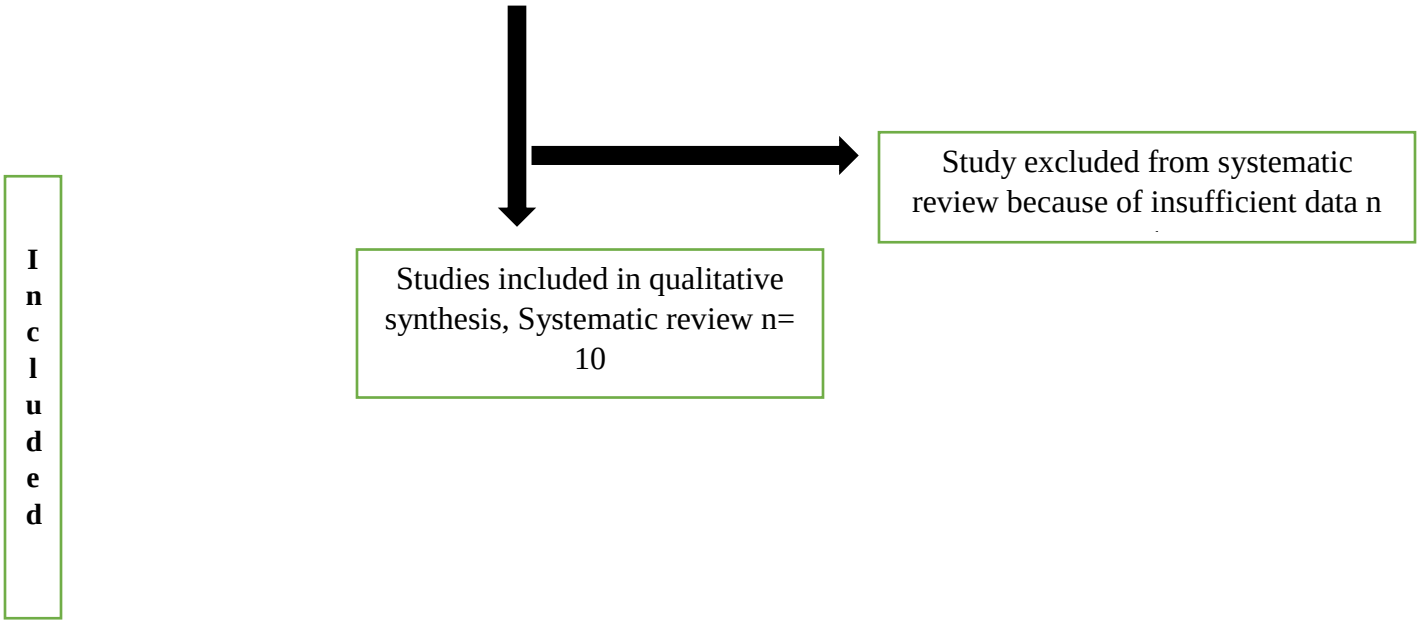
Using the filtering method process journals that did not meet the requirements like having an inappropriate tittle, not being published in English, being a summary journal, publishing for more than 6 years, etc. as well as material like newspaper articles, conference or text books, books, policy reports, etc. were all eliminated. We looked through each article reference lists based on the items we had chosen.

A total 0f 8,355 records were identified through a database search, along with 25 supplementary records found through

other sources. After removing 6150 duplicate records, 2,822 records remained for review. The tittle and abstracts of these records were screened, leading to the exclusion of 2514 based on tittle and 2,514 based on abstract. A total of 258 full – text articles were then assed for eligibility, resulting in the exclusion of 218 articles due to various reason 108 due to inappropriate [research] design, 61 dues to in adequate population, and 37 dues to improper intervention. Thirty – two studies were included in the qualitative synthesis.[10,11] However, 15 studies were excluded from the systematic review due to issues such as inadequate data (2 studies), incorrect comparator (13 studies), or being in different language (1studies). In total, 10 studies were included in the final qualitative synthesis and systematic review.**PRISMA (Reporting Items for Systematic Reviews)**

PRISMA (Reporting Items for Systematic Reviews) Flow Diagram


Identific
Screening
Eligibilit
Records identified through database search n = 8,355
Additional records identified through others sources n = 25
Records after duplications removed (n = 6,150)
Records screened (n = 6,150)
Records included by tittle (n = 6150)Records excluded by abstract n = 2514
Full text articles assess for eligibility (n = 258)
Full text article excluded n = 218
Other study design n = 108
Inappropriate population n = 61
Inappropriate intervention n = 37
Unable to review n = 25
Inappropriate comparator n = 15
Other languages n = 2
Trial registration of study n = 13
Studies included in qualitative synthesis n = 11


Included
Studies included in qualitative synthesis, Systematic review n= 10
Study excluded from systematic review because of insufficient data n

Flow Diagram attached (1)

Table 1:

AUTHOR	STUDY	COUNTRY	PARTICIPANTS	METHOD	CONCLUSION
Mo on and Hyun	Nursing student knowledge attitude self-efficacy in blended learning of cardiopulmonary resuscitation in RCT	South Korea	120 Nsg Students	Randomized control design	A CPR approach that included videos and face to face intervention that was beneficial to enhance knowledge and attitude of nursing students towards CPR
Alari ani et al (2021_	The relation between knowledge and self-efficacy of nurses regarding of cardiopulmonary resuscitation and automated in automatic defibrillators in Saudi Arabia	Saudi Arabia	287 Registered nurses	Correlational survey	Increased level of self-efficacy simulation to increase level of knowledge

Siaw eng sok ching (2018)	Nurses perception of self-efficacy in cardiopulmonary resuscitation at a private hospital in Selangor	Malaysia	2 registered nurses	Cross sectional study	Nurses self-efficacy in resuscitation and teamwork is strengthened in the private hospital though recurrent CPR certification training.
Roel and Bjork (2020)	Comparing nursing Student competence in CPR before and after pedagogical intervention	Norway	145 Nursing students	Compara tive study	The revised curriculum provided more hands-on CPR practice but it was insufficient to enhance student performance to meet the standards established by national and international criteria
Slabe and Ovan	Evaluation of Slovenian occupational therapists' theoretical knowledge and stress levels connected with providing cardiopulmonary resuscitation.	Slovenia	273 occupational therapists	survey	Regular CPR training is advised for this group of health professionals to increase knowledge and confidence
Hermanto Barlianto Suryanto (2021)	Analysis of factors affecting self-efficacy for fresh Nursing graduates in performing Cardiopulmonary Resuscitation (CPR) on cardiac arrest patient in Mélange city Indonesia.	Indonesia	154 fresh Nursing graduates	Observat ion and analysis with cross sectional approach .	The most dominant factor affecting self-efficacy is verbal persuasion
Wati, Wihastuti Nasution	Application of the Theory of planned Behavior to identify	Malang	108 U.G Nursing students	Quantitat ive study with	There was a strong association between attitude, subjective norms, self-efficacy and

(2021)	Nursing student's intension to be a Cardiopulmonary Resuscitation.			cross sectional approach.	intention. The subjective norm was the most dominating component connected with Nursing student's intention to perform by stander CPR
Alzawaidah, Al-Amer, Amro, et al (2022)	Emergency room nurses' attitudes towards family presence Jordan and during resuscitation – A cross sectional Survey.	Jordan	222 registered nurse who have worked in emergency department	Cross sectional descriptive correlation research	Increasing nurse's confidence via evidence-based practice would prepare them to deal with family presence during resuscitation.
Demirtas et al (2021)	Effectiveness simulation based cardiopulmonary resuscitation training programs on fourth year nursing students.		89 fourth year nursing students.	Mixed method design	Nursing student's knowledge and abilities increased due to simulation-based CPR instruction.
Jang – Sik Ko et al (2023)	The effect of cardiopulmonary resuscitation education on the CPR knowledge attitude, self-efficacy and confidence in performing CPR among elementary school students.	Korea	140 school children 3rd, 4th, 5th and 6th grades	Pre – Post design	This study clearly demonstrated the positive effects of CPR education on young school children.

Data Extraction and Synthesis: Two independent reviewers extracted data from selected studies, including study design, sample size, intervention details, outcome measures, and results. The risk of bias in individual studies was assessed using appropriate tools. Quantitative data were synthesized, and qualitative data were analyzed thematically.

RESULTS:

A total of 8,155 records were identified through a database search, along with 25 supplementary records found through other sources. After removing 6,150 duplicate records, 6,150 records remained for review. The tittle and abstracts of these records were screened, leading to the exclusion 2,514of based on tittle and 2,514 based on abstract. A total of 258 full – text articles were then assed for eligibility, resulting in the exclusion of 218 articles due to various reason 108 due to inappropriate research design, 61 dues to in adequate population, and 37 dues to improper intervention. Thirty – two studies were included in the qualitative synthesis.[13] However, 15 studies were excluded from the systematic review due to issues such as inadequate data (2 studies), incorrect comparator (12 studies), or being in different language (2 studies). In total, 10 studies were included in the final qualitative synthesis and systematic review. These studies varied in design, sample size, and measurement tools. The systematic review also involved a survey of 4,450 respondents from 31 regions, finding that while 67.4% had a clear understanding of CPR and 96.8% showed positive attitudes, only 58.9% demonstrated strong self-efficacy, particularly in using automated external defibrillators (AEDs).[14] Factors such as prior CPR training, awareness of AEDs, and personal health status significantly influenced knowledge, attitudes, practices (KAP), and self-efficacy. Despite generally positive results, the review highlighted the need to enhance specific professional skills, especially in AED usage.

Further analysis showed that after training, both the lecture method and concept mapping methods led to significant improvements in participants' skills, although there was a slight decline in scores after one month. This pattern of skill improvement followed by a decline over time was consistent across multiple studies reviewed. For example, in a quasi-experimental study involving 154 registered nurses, skills improved significantly immediately after training but declined over six months.

Overall, the systematic review underscores the importance of ongoing and effective CPR training in nursing education. The studies reviewed demonstrate that while initial training improves knowledge and self-efficacy, regular and continuous training is necessary to maintain these skills over time. Moreover, the integration of different training methods, such as concept mapping and simulation-based learning, may enhance learning outcomes. However, the gradual decline in skill retention highlights the need for frequent refresher courses and assessments to ensure sustained competency in CPR and AED use.

The results revealed that 61.3% of participants had moderate knowledge while 63.8% exhibited high self-efficacy, with the strongest self-efficacy observed in responding and rescuing tasks. A significant positive correlation was found between knowledge and self-efficacy ($p<0.001$; $r=0.207$), suggesting that improved knowledge leads to higher self-efficacy. Consequently, the study recommends integrating comprehensive CPR and automated defibrillation training into nursing programs to enhance these critical competencies among nurses.[15] The survey involved 4,450 respondents from 31 regions and found that while 67.4% had a clear understanding of CPR, and 96.8% showed positive attitudes, only 58.9% demonstrated strong self-efficacy, particularly in using automated external defibrillators (AEDs) Factors such as prior CPR training, awareness of AEDs and personal health status significantly influenced KAP and self-

efficacy. Despite the generally good results, there is still a need to enhance specific professional skills, especially in AED usage. After the training, both groups showed significant improvement, with mean scores of 17.24 for the lecture method and 17.85 for the concept map. One week later, the scores slightly increased to 17.75 for the lecture method and 18.35 for the concept map. However, after one month, there was a slight decline, with mean scores of 16.89 for the lecture method and 16.67 for the concept map, though the difference between the two groups was not statistically significant (P>0.05).

Remarkable gains in the learning and retention of skills are found when many researches assessing the efficacy of instructor-led training approaches in nursing education are reviewed.[12,13] In a quasi-experimental study including 154 registered nurses, Rajeswaran et al. (2018) found that the mean skill score increased from 18.30±28.97 at baseline to 79.50±29.89 following training, but at six months it fell to 54.00±28.69. The idea mapping method produced slightly higher post-training mean scores (26.64±2.64) compared to standard lecture methods (25.03±3.04), with a statistically significant difference (P=0.03), according to a study by Aliyari et al. (2019) on 57 student nurses. Shahrakivahed et al. (2015) likewise documented a significant increase in the competence of registered nurses, with mean test scores rising from 21±5.58 at pretest to 41±12.25 after training; however, a three-month fall was noted (5.45±14.36).

Moon-Sook Kim, Mi-Hee Seo, Jin-Young Jung, and Jinhyun Kim examined the effects of a Non-Invasive Positive Pressure Ventilation (NPPV) simulation software on the knowledge and self-efficacy of general ward nurses in a study published in 2021. The purpose of the study was to create and evaluate a simulation-based ventilator training program.[14,15] Twenty-nine nurses provided quantitative data; fifteen were in the intervention group and fourteen were in the control group. Nurses who took part in the simulation program demonstrated significantly higher levels of self-efficacy (p = 0.026) and ventilator-related knowledge (p = 0.029) when compared to the control group. Three major themes emerged from the qualitative data collected from seven nurses' focus group interviews: Recognizing the psychological suffering endured by patients using ventilators and offering assistance

Hen et al. (2018) conducted a quasi-experimental study at a tertiary university School of Nursing over three months, involving 39 student nurses. The participants were divided into two groups: an experimental group (n=19) receiving higher simulated training, and a control group (n=20) receiving lower simulated training. The study was 100% instructor-led, with skills assessed by two evaluators using manikins and video recordings.

Initially, the time to start chest compressions was similar between the groups, with the control group taking 41 seconds and the experimental group taking 40 seconds (p>0.05). The time to defibrillation was also comparable, with the control group at 222 seconds and the experimental group at 221 seconds (p>0.05). However, after three months, the experimental group showed significant improvement. The time to start compressions decreased to 20 seconds in the experimental group compared to 32 seconds in the control group (P<0.001). Similarly, the time to defibrillation was significantly reduced in the experimental group (167 seconds) compared to the control group (204 seconds) (P<0.001).

Anderson et al. (2019) conducted a year-long randomized controlled trial (RCT) involving 244 registered nurses to evaluate the effectiveness of an instructor-led training program. The study assessed participants' skills using a skill meter and recorded manikins, with evaluations conducted at multiple intervals. At baseline, only 5% of the participants (9 out of 167) passed the initial assessment (P=0.38). As the program progressed, there were improvements, with 58% passing at the one-month mark (15 out of 26). However, this pass rate declined over time, with 26% passing at three months (12 out of 46, P=0.008), 21% at six months (10 out of 47, P=0.002), and just 15% passing at 12 months (7 out of 48, P=0.001). These results indicate a gradual decrease in skill retention over the course of the year.

Aliyari et al. (2019) conducted a quasi-experimental study at a tertiary school of nursing to evaluate the effectiveness of instructor-led training combined with concept mapping on CPR knowledge among 57 student nurses. All participants completed the training, which was assessed using multiple-choice questions based on the American Heart Association (AHA) 2015 guidelines. Before the training, the mean CPR knowledge score was 5.82 for the lecture method group and 6.6 for the concept map group. After the training, both groups showed significant improvement, with mean scores of 17.24 for the lecture method and 17.85 for the concept map. One week later, the scores slightly increased to 17.75 for the lecture method and 18.35 for the concept map. However, after one month, there was a slight decline, with mean scores of 16.89 for the lecture method and 16.67 for the concept map, though the difference between the two groups was not statistically significant (P>0.05).

Yılmaz and Simsek (2019) conducted a one-day prospective repeated measures study with 287 registered nurses to assess the effectiveness of an instructor-led training program. The study utilized a self-constructed questionnaire to evaluate participants' knowledge and skills. Initially, 43.2% of the nurses passed the assessment. However, after the training, the pass rate significantly increased to 99%, with the improvement being statistically significant (p<0.001). The study demonstrates the effectiveness of instructor-led training in enhancing nursing competency.

Chen et al. (2018) conducted a three-month quasi-experimental study at a university School of Nursing to assess the impact of different levels of simulated training on the performance of 39 student nurses. The participants were divided into two groups: an experimental group (n=19) that received higher-level simulated training, and a control group (n=20) that received lower-level simulated training. The study was instructor-led, with performance evaluated by two assessors using skill manikins and video recordings. Initially, the time to start chest compressions was similar between the groups, with the control group taking 41 seconds and the experimental group 40 seconds (p>0.05). The time to defibrillation was also nearly identical, with the control group at 222 seconds and the experimental group at 221 seconds (p>0.05). However, after three months, the experimental group showed significant improvements, with the time to start compressions reduced to 20 seconds compared to 32 seconds in the control group (P<0.001). Similarly, the time to defibrillation decreased to 167 seconds in the experimental group, compared to 204 seconds in the control group (P<0.001).

Elements Influencing Self-Efficaciousness Research showed that a variety of factors, including personal traits, work experience, CPR training, and surroundings, had an impact on self-efficacy in CPR. According to Moon and Hyun's (2019) research, nurses are more suited to receive and process information rapidly because they have a cognitively

formed, mature mind at an early stage of maturity. These assertions were reinforced by Slabe and Oven (2020), who stated that early-career nurses are still learning and are more driven to acquire the knowledge and self-efficacy necessary to carry out CPR techniques successfully throughout their careers. Moreover, Alaryani et al. (2021) carried out a quantitative correlation analysis to ascertain the association between nurses' self-efficacy and knowledge in performing CPR. According to the results, those who exhibited high levels of self-efficacy had more than ten years Elements Influencing Self-Efficaciousness Research showed that a variety of factors, including personal traits, work experience, CPR training, and surroundings, had an impact on self-efficacy in CPR. According to Moon and Hyun's (2019) research, nurses are more suited to receive and process information rapidly because they have a cognitively formed, mature mind at an early stage of maturity. Slabe and Oven (2020) reinforced these assertions by pointing out that early-adult nurses are still in the process of learning and gaining experience, and they have previously performed CPR. Furthermore, the study conducted by Siew Eng and Sok Ching (2018) sought to ascertain the degree of nurses' perceived self-efficacy with regard to CPR in a Kuala Lumpur private hospital. While the nurses generally had high levels of self-efficacy, there were variations in age groups, actual CPR experiences, and years of work experience among the responders (Siew Eng & Sok Ching, 2018). This study provided a thorough illustration of how nurses' age affects their level of self-efficacy in performing CPR, as well as the amount of time they have worked, the type of CPR training they have previously received, and the actual experiences they have had (Siew Eng & Sok Ching, 2018). One important factor impacting nurses' self-efficacy is training. In their study, Slabe and Oven (2020) found that CPR-based instruction had a significant effect on knowledge, but that the ability significantly decreased four months after training. This shown that the knowledge of inexperienced nurses tended to decline dramatically, indicating that training evaluations have to be conducted on a regular basis to boost self-efficacy. Additionally, Riggs, Franklin, and Saylany (2019) looked into whether prior instruction CPR psychomotor skills were related to training history, including the length of time since the last training or the amount of training completed. This study showed that training, as opposed to not receiving instruction, was associated with an increase in CPR self-efficacy. On the other hand, compared to not having had any prior training, having received prior training was linked to improved skills. Continuous education courses are also essential to nurses' CPR self-efficacy. On the other hand, prior knowledge and training about CPR performance are essential. This does not imply that in order to improve their efficacy, nurses should not occasionally engage in activities. Moon and Hyun (2019) also stated that nurses must be knowledgeable, well-prepared, and up to date in order to CPR psychomotor skills were related to training history, including the length of time since the last training or the amount of training completed. This study showed that training, as opposed to not receiving instruction, was associated with an increase in CPR self-efficacy. On the other hand, compared to not having had any prior training, having received prior training was linked to improved skills. Nurses must participate in ongoing training programs to stay up to date on life-saving techniques, which may need ongoing CPR training. According to Roel and Bjørk (2020), there is a need for ongoing training because nurses. Global Journal of Health Science, 2022 6 and improved CPR education initiatives. This is necessary for nursing programs and healthcare companies since nurses' CPR abilities continue to decline if training is not regularly provided (Roel & Bjørk, 2020).

Studies related to self-efficacy Review:

The study utilized a cross-sectional, descriptive, correlational survey design to assess the relationship between knowledge and self -efficacy among 287 nurses at King Abdulaziz University Hospital, Saudi Arabia. Data were collected using the Resuscitation knowledge and self-efficacy scales via Google forms from November 2020 to January 2021. The results revealed that 61.3% of participants had moderate knowledge while 63.8% exhibited high self-efficacy, with the strongest self-efficacy observed in responding and rescuing tasks. A significant positive correlation was found between knowledge and self-efficacy ($p<0.001$; $r=0.207$), suggesting that improved knowledge leads to higher self-efficacy. Consequently, the study recommends integrating comprehensive CPR and automated defibrillation training into nursing programs to enhance these critical competencies among nurses.

Time is one of the factors affecting CPR-D efficacy. The time between cardiac arrest onset to CPR and defibrillator use is associated with increased survival; therefore, even a few minutes of delay are potentially deadly (koster et al., 2010). In addition, a study cartledge et al. (2020) found that most respondents were unsure about how to use the defibrillator. Those with less experience using defibrillators may therefore have a sense of decreased knowledge and self-efficacy.

The study evaluates the effectiveness of a blended learning cardiopulmonary resuscitation (CPR) education program, combining e-learning and face-to-face instruction, in enhancing nursing students, knowledge, attitudes, and self-efficacy. Using a randomized controlled design, 120 nursing students were divided into an intervention group, which received blended CPR training, and a control group. The intervention group demonstrated significantly higher knowledge and more positive attitudes towards CPR compared to the control group, although other outcomes showed no significant difference. These results suggest that blended learning is an effective approach to improving nursing student's knowledge and attitudes towards CPR.

A cross-sectional online survey conducted in Mainland China from February to June 2022 assessed the public's knowledge, attitudes, practices (KAP) and self-efficacy regarding CPR. The survey involved 4,450 respondents from 31 regions and found that while 67.4% had a clear understanding of CPR, and 96.8% showed positive attitudes, only 58.9% demonstrated strong self-efficacy, particularly in using automated external defibrillators (AEDs) Factors such as prior CPR training, awareness of AEDs and personal health status significantly influenced KAP and self-efficacy. Despite the generally good results, there is still a need to enhance specific professional skills, especially in AED usage.

CPR Knowledge: 8,155 out of 10 studies reported a statistically significant improvement in CPR knowledge following simulated learning with oral debriefing. The methods of knowledge assessment varied across studies, including written tests, multiple-choice questions, and scenario-based evaluations. Therefore, we recommend future CPR training efforts prioritize conducting high – quality, large – sample studies. This will enable a more comprehensive analysis of the effectiveness oral debriefing with simulated learning impact on self – efficacy and CPR skill, give substantial evidence for the refinement of guidelines and the development of related teaching methodologies.

A total of 182 studies with 16,636 participants were found. Retraining abilities with simulation-based training seems to be generally more effective than no intervention, irrespective of the particular task performed, learner level, study

methodology, or measured outcome. The knowledge (Hedges' g) 1.05 (95% confidence interval, 0.81–1.29), process skill 1.13 (0.99–1.27), product skill 1.92 (1.26–2.660), time skill 1.77 (1.13–2.42), and patient outcomes 0.26 (0.047–0.48) were all enhanced by simulation training compared to no intervention. Learner satisfaction results of 0.79 (0.27–1.31) and process skill results of 0.35 (0.12–0.59) favored simulation over non-simulation intervention. Higher process skill outcomes were found in courses using "booster" practice 0.13 (0.03–0.22), team/group dynamics 0.51 (0.06–0.97), distraction 1.76 (1.02–2.50), and integrated feedback 0.49 (0.17–0.80) compared to courses without these features, according to studies looking into how to optimize simulation training. Most analyses reflected high between - study inconsistency (12 value's > 50%)

CPR Skill: 158 out of 8 studies demonstrated a significant enhancement in CPR skill performance among nurses who received simulated learning with oral debriefing. Skill assessments often involved the use of standardized checklists, manikins, and simulation scenarios.

Self-Efficacy: 105 out of 4 studies reported an increase in nurses' self-efficacy levels following the intervention. Self-efficacy was typically assessed using self-report questionnaires or Likert scale ratings.

DISCUSSION:

The findings of this systematic review suggest that simulated learning with oral debriefing is an effective educational strategy for improving CPR knowledge, skill, and self-efficacy among nurses. This approach enhances nurses' competence in providing high-quality CPR, which can ultimately translate into better patient outcomes during cardiac arrest events.

The systematic review evaluated multiple studies focusing on the knowledge, attitude, self – efficacy and skill performance of healthcare professionals, primarily nursing students, and registered nurses in cardiopulmonary resuscitation (CPR). The review synthesized findings from various mythologies, including randomized control trials (RCTs), correlational surveys, cross – sectional studies, and quasi – experimental deigns. The key themes emerging from the discussion include the impact of training methods on knowledge retention, the relationship between self – efficacy and CPR skills, and the need for knowledge retention, the relationship between self – efficacy and CPR skills, and the need for ongoing education.

Impact of Training Methods on Knowledge Retention

The studies reviewed consistently highlight the effectiveness of structured training programs, including simulations instructor – led sessions, and blended learning approaches, in enhancing CPR knowledge among nursing students and professionals. For instance, Mo and Hyun’s in RCT in South Korea demonstrated that a blended approach, combining video tutorials with face to face interventions, significantly improved nursing student’s knowledge and attitudes towards CPR. Similarly, Demirtas et al.’s study confirmed that simulation – based CPR training enhanced the knowledge and abilities of fourth – year nursing students.

However, the review also identifies a critical challenge: the gradual decline in knowledge retention over time, Multiple studies, including those by Rajeswaran et al. (2018) and Andreson et al. (2019), observed significant improvements in CPR skills immediately following training, but these gains diminished after several months. This pattern suggests that while initial training is effective, its benefits are not sustained without ongoing reinforcement. Therefore, the review underscores the importance of regular refresher courses and continuous education to maintain high levels of competency in CPR.

This pattern suggests that while initial training is effective, its benefits are not sustained without ongoing reinforcement. Therefore, the review underscores the importance of regular refresher courses and continuous education to maintain high levels of competency in CPR.

Relationship Between Self-Efficacy and CPR Skills

Self-efficacy, or the belief in one's ability to perform CPR effectively, emerged as a crucial factor influencing CPR performance. Studies by Alariyani et al. (2021) and Siaw Eng Sok Ching (2018) highlighted a positive correlation between self-efficacy and CPR knowledge, suggesting that individuals with higher self-efficacy are more likely to retain and apply CPR knowledge effectively.

Interestingly, the review also revealed that self-efficacy is influenced by various factors, including prior training, work experience, and personal characteristics. For example, Slabe and Oven (2020) found that younger nurses or those with less experience showed greater improvements in self-efficacy after training, possibly because they are more motivated to acquire new skills. Conversely, the study by Wati et al. (2021) in Indonesia found that subjective norms, or the perceived expectations of others, were the most significant predictors of nursing students' intention to perform CPR, indicating that social and cultural factors also play a role in shaping self-efficacy.

Need for Ongoing Education:

The review strongly supports the need for continuous and updated CPR training programs. As evidenced by Roel and Bjørk's (2020) study, even with an improved curriculum that provided more hands-on practice, the competence of nursing students still fell short of meeting national and international standards. This finding aligns with the broader conclusion that initial gains in CPR skills and knowledge, while significant, tend to diminish over time without ongoing practice and reinforcement.

Moreover, the review suggests that incorporating diverse training methods, such as concept mapping, simulation-based learning, and oral debriefing, can enhance the effectiveness of CPR education. However, the gradual decline in skills post-training highlights the necessity for frequent assessments and booster sessions to ensure sustained competency.

RECOMMENDATIONS:

Based on the findings, the review recommends integrating comprehensive CPR and automated defibrillation training into nursing curricula, with an emphasis on regular refreshers to prevent skill decay. Additionally, further research is needed to explore the most effective combinations of training methods, particularly in terms of sustaining long-term knowledge retention and self-efficacy. Future studies should also consider larger sample sizes and more rigorous methodologies to strengthen the evidence base for CPR training programs.

In conclusion, while CPR training programs are effective in the short term, maintaining and enhancing these critical skills requires ongoing education, regular practice, and a supportive learning environment. By addressing these needs, healthcare institutions can better prepare nurses and other healthcare professionals to respond effectively in life-saving situations

However, there is variability in the assessment methods used across studies, and the duration and intensity of the interventions varied. Furthermore, the generalizability of the results may be limited due to the heterogeneity of the study populations and settings.

STRENGH OF THE STUDY:

The systematic review included a large and diverse set of studies, with data collected from different countries, participants groups and methodologies. This broad scope enhances the generalizability of the findings across different health care settings. The multifaceted approach provides a holistic understanding of the impact of CPR training programs.

LIMITATION:

The generalizability of the result limited as nursing students, and different university like UK, Korea, Malaysia, Italy, South Korea, etc. In addition, the amount of prior knowledge of CPR among nursing students differed in this study. Research with control group and triangulation with qualitative studies that explore elements beyond characteristics covered in this study would be prudent.

CONCLUSION:

Simulated learning with oral debriefing is a promising approach to enhance CPR knowledge, skill, and self-efficacy among nurses. The available evidence suggests a positive impact on these outcomes. Future research should focus on standardizing assessment methods, exploring the long-term retention of skills and knowledge, and investigating the cost-effectiveness of this training approach in different healthcare settings.

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CONFLICT OF INTEREST: The Author declare no conflict of Interest.

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1. Lewis's Text book of Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Fourth South Asia Edition (Two Volume Set) By Chintamani.
2. Brunner & Suddath's Text book Of Medical Surgical Nursing, (South Asian Edition) – Volume set Paperback – 30 August 2018.

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Paper Title	Knowledge on cardiopulmonary resuscitation among rural adults at Bangalore, India

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Knowledge on cardiopulmonary resuscitation among rural adults at Bangalore, India

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Abstract:
Knowledge of cardiopulmonary resuscitation (CPR) among 253 adults in a rural area of Bangalore is of interest. The findings revealed a significant knowledge gap, with 81.4% of participants having inadequate understanding of cardiopulmonary resuscitation. Education level emerged as the sole demographic factor significantly associated with cardiopulmonary resuscitation knowledge, highlighting the importance of targeted educational initiatives. Despite prior exposure to cardiopulmonary resuscitation through various channels, widespread misconceptions persisted, emphasizing the need for practical, community-specific training programs. Hence, the need for equipping rural communities with essential life-saving skills to improve pre-hospital emergency care is highlighted.

Keywords: Cardiopulmonary resuscitation knowledge, rural communities, educational initiatives, emergency readiness, health outcomes

Background:
Cardiopulmonary resuscitation (CPR) is a life-saving skill that significantly increases survival rates during cardiac emergencies. Despite its critical importance, cardiopulmonary resuscitation knowledge remains alarmingly low, particularly in rural communities where access to immediate medical assistance is limited. Studies reveal that globally only 2.5% of individuals are trained in cardiopulmonary resuscitation and in India, the percentage is even lower, with Karnataka reporting a rate of 1.5% **[1, 2]**. This disparity underscores the pressing need for targeted educational initiatives to equip rural populations with essential life-saving skills. Previous research highlights the correlation between cardiopulmonary resuscitation training and improved bystander response during emergencies **[3, 4]**. However, barriers such as lack of awareness, cultural misconceptions and limited training resources persist, particularly in underserved regions **[5, 6]**. Therefore, it is it interest to assess knowledge on cardiopulmonary resuscitation among rural adults of Bangalore, India.

Methodology:
The purpose of the study is to determine the level of knowledge, gaps in knowledge and misconceptions related to cardiopulmonary resuscitation among the surveyed population and to find the association between the demographic variables among adults residing in a selected rural area of Bangalore.

Hypothesis:
There is a significant relationship between the demographic variables and the knowledge of cardiopulmonary resuscitation of an adult residing in a selected area of Bangalore.

Novelty:
Many studies have been conducted at both international and national levels. However, very few studies have been conducted in India, particularly in rural areas. Hence, the researcher emphasizes the importance of conducting research at the rural level to enhance knowledge and practice and to create awareness among adults residing in selected areas. Every minute is precious and crucial in an emergency to correct ourselves, provide quality life support and improve lives. This is a cross-sectional study determining cardiopulmonary resuscitation knowledge among Adults residing in the Kempapura village (rural). Around 2650 people lived in Bangalore between February and September 2024.

Criteria of the study participant:
The study population included both males and females; adults residing in the Kempapura village aged 18 to 25. They were physically and mentally sound and willing to participate in our survey and give their spontaneous opinion regarding their knowledge of cardiopulmonary resuscitation. The participants were selected through a Stratified Random Sampling Technique. This method ensured that different subgroups within the population were adequately represented in the Kempapura village.

Data collection:
We used self-administered questions as previously described in Kanada and English languages; the questionnaire consisted of Demographic data including Age, Gender, Religion, type of family, size of family, previous knowledge about cardiopulmonary resuscitation (1), self-administered knowledge questionnaire (2) which have 25 questions which can be divided into five sections, general cardiopulmonary resuscitation knowledge (6) questions of practice about cardiopulmonary resuscitation (8), willingness and confidence in performing cardiopulmonary resuscitation in an emergency (5), common misconception and gaps (4), Improvement in the knowledge of cardiopulmonary resuscitation (2), to detect the impression of participants and their suggestions to increase the awareness among the population to determine the validate of our questionnaire with content validity and randomly distributed to survey of 253 adults in this all the 253 questionnaire were appropriately filled with response rate is 100%.

Data processing and analysis:
The data were analysed using the Statistical Package for Social Sciences version 21. The descriptive, inferential and comparative statistical analyses were performed on the association between the demographic characteristics analysed using the chi-square test and the P value was used to detect the significant parameter on a categorical score between the groups when needed.

Inclusion criteria:
[1] Residents of selected rural area
[2] Adults aged 18 years to 40 years.

[3] Consent to participate in the survey
[4] Those who know how to read and write Kannada.

Exclusion criteria:
[1] Individuals who are not permanent residents of the selected area.
[2] Individuals below 18 years
[3] Non consenting individuals.

Results:
This study was carried out on 253 participants who completed the survey, with a response rate of 100% of the demographic data shown in (**Table 1**). The distribution of participants that 30.4% (n=77) aged 18-20, 39.1% (n=99) fall within the 21-30 age group and the other 30.4% (n=77) are aged 31-40, a majority of participants are female, making up 66.8% (n=169), while males constitute 33.2% (n=84), most of the participants (47.8) (n=121) have completed primary education, 44.7% (n=113) have higher secondary education. In comparison, 7.1% (n=18) have no formal education—a small fraction of 0.4% (n=1) have undergraduate or post-graduate degrees in the occupation. The largest group of participants are private sector employees, constituting 46.2% (n=117); homemakers represent 39.5% (n=100); unemployed individuals make up 13.0% (n=33), while only 0.4% (n=1) are formers and 0.8% (n=2) are labourers, none of the participants in business or Government employment. The majority of the participants, 49.8% (n=126), live in families with 4 to 5 members, 36.8% (n=93) have 2 to 3 members in their household and 13.4% (n=34) in families of 6 to 8 members there were no families with more than 10 members, in the type of family 57.3% (n=145) belongs to joint families and 42.7% (n=108) belongs to nuclear families. cardiopulmonary resuscitation only 7.1% (n=18) of participants had heard of cardiopulmonary resuscitation, while the remaining 92.9% (n=225) were not aware; most participants 94.9% (n=240) gained cardiopulmonary resuscitation knowledge from multiple sources, including schools, social media and others, 4.7% (n=2) learned through Television, Radio, community health programs and 0.4% (n=1) gained cardiopulmonary resuscitation knowledge from workplace training or family and friends. **Table 2** shows the assessment level of knowledge, gaps in knowledge and misconceptions related to cardiopulmonary resuscitation among Adults (n=253). In this medium, the score for knowledge about cardiopulmonary resuscitation is 1.0, with a mean score of 1.35 and a Standard Deviation of 1.66. In the cardiopulmonary resuscitation practice knowledge, the median score is 0.0, with a Mean of 1.26 and a Standard Deviation of 1.99. In the willingness and confidence in performing cardiopulmonary resuscitation, participants showed low willingness and enthusiasm, with a Median score of 0.0, the Mean of 0.34 and Standard Deviation of 0.86, the Median score of common misconception and knowledge gaps were 0.0, with a Mean of 0.33 and a Standard deviation of 0.69, indicating widespread misconception or lack of understanding and in the suggestion for cardiopulmonary resuscitation education, the Median score of 1.0 a Mean of 3.62 and a Standard Deviation of 4.81, in the last overall knowledge score was 1.0 with a Mean of 3.52 and Standard Deviation of 4.66 (**Figure 1**) **Table 3** show frequency and percentage distribution level of knowledge, gaps in knowledge and misconceptions related to cardiopulmonary resuscitation among Adults (n=253), from this table inadequate knowledge level (0-9). A significant majority of participants, 81.4% (n=206), have insufficient knowledge regarding cardiopulmonary resuscitation. This indicates that most adults possess minimal understanding with considerable gaps and misconceptions about the practice of cardiopulmonary resuscitation. In the moderately adequate knowledge (10-19), only 18.6% (n=47) of the participants fall into the category of moderately insufficient knowledge and these adults have some understanding of cardiopulmonary resuscitation, but their knowledge still requires improvement to perform the procedure or understand it fully effectively, none of the participants achieved an adequate level of knowledge, defined by highest possible score range (20-25) This underscores the overall lack of comprehensive cardiopulmonary resuscitation knowledge among the group. The data reveals a widespread level of cardiopulmonary resuscitation knowledge, with the vast majority (81.4%) scoring in the inadequate range, which suggests significance. **Table 4 (Figure 2):** Present the association between the level of knowledge, gaps and misconceptions related to cardiopulmonary resuscitation among adults with various demographic variables. The chi-square test was used to analyse the associations with a significant set at $P<0.05$. The distribution of knowledge level across the age group showed no significant association with cardiopulmonary resuscitation knowledge; participants aged 21-30 years had the highest percentage of inadequate knowledge (32%) and 18-20 years (24%); despite these differences, the chi-square test result P=0.817 indicates age is not significant, significantly associated with the cardiopulmonary resuscitation knowledge. Meanwhile, the same non-significant level was found in the sexes in males (27.3%) and females (54.2%). However, the P value (P=0.836), Religion the Hindu represented largest group with inadequate knowledge (62.1%), Muslims (11.9%), Christians (6.3%) the P value (P=0.225), in number of family members most of Adult family 4-5 members (40.7%) had inadequate knowledge (E=0.949) and type of family the majority of participants in joint family (47%) and Nuclear family (34.4%) between family size not significant (p=0.759) only in the education level there was significant association between education level and cardiopulmonary resuscitation knowledge ($p = 0.032$) participants with no formal cardiopulmonary resuscitation education (4.3%) or primary education (40.7%) mostly had inadequate knowledge where those with higher secondary education (80.7%) were more likely to have education (8.7%) were more likely to have moderately adequate knowledge, Education plays a critical role in determining cardiopulmonary resuscitation knowledge. Although the majority of those who had never heard of cardiopulmonary resuscitation (75.5%), p=0.836 had inadequate knowledge levels, not significant most participants who reported learning about cardiopulmonary resuscitation from various sources (77.1%) had insufficient knowledge, no significant association with knowledge levels ($p = 0.877$).

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Among the demographic variables assessed, education level was the only factor significantly associated with cardiopulmonary resuscitation knowledge, indicating that individuals with higher educational attainment tend to understand cardiopulmonary resuscitation better. Other variables such as age, sex, occupation and family structure showed no significant association, understanding the need for broader educational interventions across all demographic variables.

Table 1: Frequency and percentage distribution of demographic variables of adults **N = 253**

Demographic Variables	F	%
Age		
18 – 20	77	30.4
21 – 30	99	39.1
31 – 40	77	30.4
Sex		
Male	84	33.2
Female	169	66.8
Religion		
Hindu	192	75.9
Muslim	41	16.2
Christian	17	6.7
Others	3	1.2
Education level		
No formal education	18	7.1
Primary education	121	47.8
Higher secondary education	113	44.7
Undergraduate degree / Postgraduate degree	1	0.4
Occupation		
Unemployed	33	13
Farmer	1	0.4
Labourer	2	0.8
Business	-	-
Govt. Employee	-	-
Private sector employee	117	46.2
Homemaker	100	39.5
Household Size :(Number of family members)		
2 to 3 members	93	36.8
4 to 5 members	126	49.8
6 to 8 members	34	13.4
More than 10 members	-	-
Type of family		
Joint family	145	57.3
Nuclear family	108	42.7
Have you ever heard of CPR?		
Yes	18	7.1
No	225	92.9
Where did you first learn about CPR?		
School / College/Internet/Social Media	-	-
Workplace training /Friends/Family	1	0.4
Television / Radio/Community health programs	2	4.7
All of the above	240	94.9

Table 2: Assessment of knowledge, gaps in knowledge and misconceptions related to cardiopulmonary resuscitation among adults **N = 253**

Knowledge	Median	Mean	S.D
Knowledge of CPR	1	1.35	1.66
Knowledge of practice about CPR	0	1.26	1.99
Willingness and Confidence in Performing CPR in an Emergency	0	0.34	0.86
Common Misconceptions and Gaps in Knowledge	0	0.33	0.69
Suggestion	1	3.62	4.81
Overall knowledge	**1**	**3.52**	**4.66**

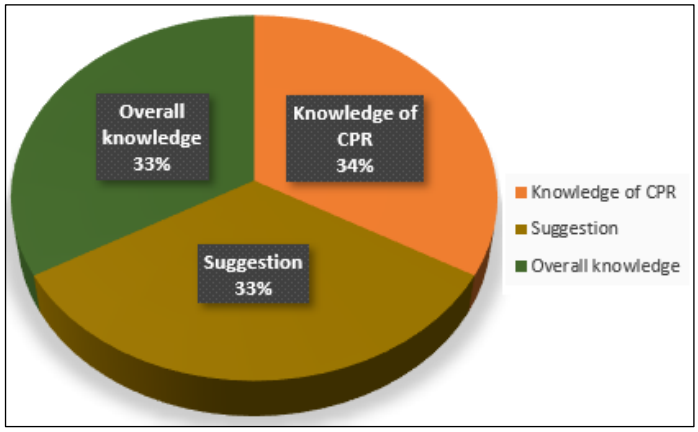

Figure 1: Assessment of knowledge, gaps in knowledge and misconceptions related to cardiopulmonary resuscitation among adults
N=253

Table 3: Frequency and percentage distribution of level of knowledge, gaps in knowledge and misconception related to cardiopulmonary resuscitation among adults **N = 253**

Knowledge	Frequency	Percentage (%)
Inadequate (0 – 9)	206	81.4
Moderately adequate (10 – 19)	47	18.6
Adequate (20 – 25)	-	-

Table 4: Association of the level of knowledge, gaps in knowledge and misconception related to cardiopulmonary resuscitation among adults with selected demographic variables **N = 253**

Demographic Variables	Inadequate		Moderately Adequate		Chi-Square Test & p-value
	F	%	F	%	
Age					χ^2=0.403
18 – 20	61	24.1	16	6.3	d.f=2
21 – 30	81	32	18	7.1	P=0.817
31 – 40	64	25.3	13	5.1	N.S
Sex					χ^2=0.043
					d.f=1
Male	69	27.3	15	5.9	P=0.836
Female	137	54.2	32	12.6	N.S
Religion					χ^2=4.357
Hindu	157	62.1	35	13.8	d.f=3
Muslim	30	11.9	11	4.3	P=0.225
Christian	16	6.3	1	0.4	N.S
Others	3	1.2	0	0	

Education level					**χ^2=8.764**
No formal education	11	4.3	8	3.2	**d.f=3**
Primary education	103	40.7	17	6.7	**P=0.032**
Higher secondary education	91	36	22	8.7	**S***
Undergraduate degree / Postgraduate degree	1	0.4	0	0	
Occupation					χ^2=1.738
Unemployed	26	10.3	7	2.8	d.f=4
Farmer	1	4	0	0	P=0.784
Laboure	1	0.4	1	0.4	N.S
Business	-	-	-	-	
Govt. Employee	-	-	-	-	
Private sector employee	96	37.9	21	8.3	
Homemaker	82	32.4	18	7.1	
Number of family members					χ^2=0.105
2 to 3 members	76	30	17	6.7	d.f=2
4 to 5 members	103	40.7	23	9.1	P=0.949
6 to 8 members	27	10.7	7	2.8	N.S
More than 10 members	-	-	-	-	
Type of family					χ^2=0.094
					d.f=1
Joint family	119	47	26	10.3	P=0.759
Nuclear family	87	34.4	21	8.3	N.S
Have you ever heard of CPR?					χ^2=0.047
					d.f=1
Yes	15	5.9	3	1.2	P=0.836
No	191	75.5	44	17.4	N.S
Where did you first learn about CPR?					χ^2=0.262
School / College/Internet/Social media	-	-	-	-	d.f=2
Workplace training /Friends/Family	1	0.4	0	0	P=0.877
Television / Radio/Community health programs	10	4	2	0.8	N.S
All of the above	195	77.1	45	17.8	

*p<0.05, S – Significant, N.S – Not Significant

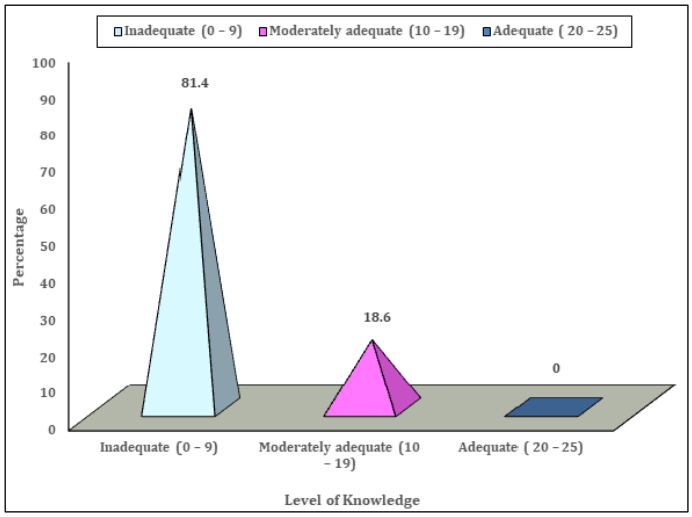

Figure 2: Percentage distribution of level of knowledge, gaps in knowledge and misconceptions related to cardiopulmonary resuscitation among adults

Discussion:

The findings of this study revealed a poor level of cardiopulmonary resuscitation knowledge among adults residing in Kempapura, with significant knowledge gaps and misconceptions even among those with prior training. This aligns with the findings of Joseph *et al.* **[8],** which identified inadequate cardiopulmonary resuscitation knowledge in rural populations due to limited access to training and low awareness. Furthermore, Agarwal *et al.* **[7]** highlighted that despite healthcare workers' relatively higher exposure, consistent refresher courses are essential for skill retention, emphasizing the broader need for sustained education efforts across all population groups. Practical training plays a crucial role in addressing these knowledge gaps. Aqel *et al.* **[6]** demonstrated that hands-on cardiopulmonary resuscitation training improves skill acquisition and retention, particularly when combined with interactive teaching methods. However, the current study found that even those who had attended cardiopulmonary resuscitation training exhibited significant misconceptions, underlining the need for more effective and comprehensive training methodologies tailored to rural contexts. The association between education levels and cardiopulmonary resuscitation knowledge observed in this study echoes the findings of Pareek *et al.* **[9],** who reported a significant correlation between educational background and awareness of life-saving techniques. Similarly, Joshi *et al.* **[10]** emphasized integrating cardiopulmonary resuscitation education into school curricula and community outreach programs to improve baseline knowledge. Misconceptions about chest compression techniques, cardiopulmonary resuscitation effectiveness and when to perform resuscitation remain pervasive, as noted by Becker *et al.* **[11],** who stressed that inadequate knowledge directly impacts bystander intervention rates. Addressing these misconceptions through targeted community-level interventions, as suggested by Agarwal *et al.* **[7],** could significantly enhance emergency response capabilities in rural areas. The findings underscore the urgent need for structured cardiopulmonary resuscitation training programs in rural regions in light of increasing cardiac emergencies, particularly post-COVID-19. Future research

should focus on evaluating the long-term retention of cardiopulmonary resuscitation skills, exploring attitudes toward training and identifying barriers to knowledge acquisition. Such initiatives are critical for improving survival outcomes in rural populations and bridging the gap in pre-hospital emergency care. This study highlights the significant gap in cardiopulmonary resuscitation knowledge among adults in rural Bangalore, consistent with prior findings. Ramya *et al*. **[12]** and Cambell *et al.* **[13]** reported similar trends, attributing low awareness to limited access to training and healthcare resources in rural areas. Vanashree *et al.* **[14]** And Bhandari and Teng **[15]** explained that structured training programs significantly improve cardiopulmonary resuscitation knowledge and skills, reinforcing the need for targeted interventions in underserved regions. Bhandari *et al*. **[16]** ,Ranimol *et al*. (2024) **[17]** and Amro *et al*. **[18]** emphasized the life-saving potential of bystander cardiopulmonary resuscitation and the long-term benefits of community-wide training programs, which have been shown to increase survival rates in cardiac emergencies

Limitations:

The study is limited to a specific rural area and may not be generalisable to other regions. Self-reported data may be subject to recall or social desirability biases. The study is expected to be completed within 3 months, including the phases of preparation, data collection, analysis and report.

Conclusion:

Current data shows a significant gap in the knowledge of cardiopulmonary resuscitation among adults in rural areas. Improving awareness and skills was crucial to saving lives, especially in areas with limited access to immediate medical care. Education and training could bridge this gap and empower rural communities to respond effectively in an emergency. Further studies are recommended to prevent the incidence of an emergency by creating awareness among people.

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